Trescott

MONEY, BANKING, & ECONOMIC WELFARE

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MONEY, BANKING,
AND ECONOMIC WELFARE

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60-8043

1960
McGRAW-HILL BOOK COMPANY, INC.
New York Toronto London

MONEY, BANKING, AND ECONOMIC WELFARE

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THE MAPLE PRESS COMPANY, YORK, PA.

To Ruth, Jeffrey, and Jill

4-1-63 Rub Replacements

PREFACE

This book, which is intended as a text for undergraduate courses in money and banking, stresses analysis, appraisal, and public policy. It does not attempt to deal with banking and finance from a managerial point of view; but financial practices relating to the composition of bank assets, bank supervision, speculation, insurance, and other matters are described where they appear to have significant implications for the public welfare.

The basic objective of the book is to analyze the relations between money and finance and economic welfare to promote better guidance of monetary and financial policies. Description is subordinated to analysis of how things occur and evaluation of their significance for welfare and policy. The sequence of topics was chosen for this purpose. First the student is presented with the analytical instruments required to understand how things work. Then he is shown how they have worked in the past. Only after this foundation of theory and history has been laid can a wholly adequate discussion of policy be conducted. For this reason, discussion of contemporary monetary policy comes at the end, where it is extensively treated.

Throughout the book the stress is on breadth of treatment. I have tried to spell out fully the relations between the central topics and various complementary areas of study. My own course, in which this material was developed, is essentially a broad course in intermediate economics that stresses money and finance rather than merely one specialized area of advanced economics. Such breadth appears in the stress on the price system and resource allocation in Chapters 1 and 12; in the detailed treatment of saving, business financing, and capital formation in Chapter 10; and in the emphasis on the economic, political, and social context of monetary and financial history throughout. I believe this approach will be valuable for the economics major in helping him fit the subject matter into its place relative to his other courses. The method should also make the book more valuable and palatable to majors in fields other than economics, who will not take extensive work in the complementary areas.

It seems foolish to expect students to take a critical and scholarly attitude toward economic "science" if it is presented to them as a series of scholastic exercises in abstract reasoning, devoid of evidence. I have tried throughout to give a maximum empirical foundation to theory and assertion. This is particularly evident in the chapters on monetary theory. In the vital area of monetary policy, I have tried to evaluate the evidence concerning the actual influence of credit conditions on spending and on other controversial variables such as income distribution and small-business credit. In the process of weighing the evidence, I have incurred a tremendous debt of gratitude to the institutions and people who have done the arduous work of collecting and publishing statistical material. In particular, the book makes extensive use of material published by the Department of Commerce and the Federal Reserve System and the findings of Raymond Goldsmith. I am especially grateful to the institutions and individuals who took the trouble to supply me with material by mail: the Federal Reserve Board, the Treasury, the Securities and Exchange Commission, the New York Stock Exchange, the International Monetary Fund, the American Bankers Association, the United States Savings and Loan League, Eva Mueller, Addison Cutler, and Anna J. Schwartz.

As a book reflects its author, so the author reflects the influence of teachers, institutions, and friends. I owe much gratitude to my teachers at Swarthmore, particularly Frederick Manning and Laurence Lafore, who encouraged my interest in history, which is amply reflected in this book. My appreciation also extends to my Princeton professors, particularly William J. Baumol, Paul J. Strayer, and Lester V. Chandler.

The book was written at Kenyon and shaped by my teaching needs. The wide range of courses which I have been able to teach contributed greatly to the breadth of approach of the book. The environment of Kenyon has been congenial in large measure because of my departmental chairman, Paul M. Titus, whose kindness and support have been unremitting. A word of gratitude is due also to my students, who have struggled with various earlier drafts of this material in courses that range from elementary economics to the advanced course in business fluctuations. Classroom experience has been the major inspiration for the methods of exposition embodied herein.

In the actual preparation of the contents of the book, my most extensive criticism came from a group of reviewers who were chosen by the publishers and whose names remain unknown to me. Their anonymity is regrettable, for I found their criticisms extremely valuable, and they exerted a major influence in the shaping of Part 3 particularly. My colleague James Nordyke provided helpful analysis of the section on international finance. My wife helped reduce the number of stylistic grotesqueries and assisted with proofreading, as well as held together all the loose ends of everyday living which an author invariably neglects when engaged in an enterprise of this sort.

Paul B. Trescott

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PART ONE

INTRODUCTORY

CHAPTER 1

THE NATURE AND FUNCTIONS OF MONEY

WHAT MONEY IS AND DOES

Introductory. If money is not the heart of our economic system, it can certainly be considered its blood stream. Through payments of money, the products and services which are the real end result of the economic process move from their producers to ultimate users, and those who contribute their labor or property to the productive process receive a share of the fruits. Further, the desire to acquire money incomes and monetary wealth furnishes (to change the metaphor) both a steering wheel and an engine for the economic machine. The monetary motive provides an incentive for workers or property owners to put their resources to work. The money prices or incomes established by the system provide a set of guides indicating which products should be produced, by what methods, and where each person's labor or property can be used in the most productive manner.

Money has two vital functions to perform in economic life. First, it serves as the unit of account, or measure of value, in which prices are quoted. In a price system such as our own, the monetary unit (dollar, franc, pound) becomes a common denominator of economic value. Second, money serves as a medium of payment and exchange. Sellers of goods and services receive money in payment for them, which they in turn spend to buy the goods and services they desire. In a money economy like our own, money becomes an intermediary in the process through which individuals exchange their labor or property services for consumer goods and services. For most of us, "real" economic life consists of performing productive efforts and receiving in exchange real goods and services. Money may be compared to a chemical catalyst, which makes a reaction take place efficiently but is not contained in the final compound.

One may distinguish between the monetary unit and the actual money of exchange. Our monetary unit is the dollar, while our money of exchange consists of coins, paper currency, and bank deposits transferable by check. The money of exchange has its value fixed in terms of the unit of account.

The ultimate test of whether a thing is money is whether it is used as a medium of payment. Whatever serves as money *is* money, whether it be a metal coin, a cigarette, or a string of shells. The variety of things which have served as money is impressive evidence of human ingenuity, as we shall see in the following chapter.

The "Mystique" of Money. Money has two faces, figuratively as well as literally. To the economist, it is a social device which serves in many ways to increase economic productivity. Traditional economics visualizes money as a mere convenience, sought by individuals merely as the means of acquiring the goods and services which are the real object of their desires. Economists of the nineteenth century spoke of "the veil of money," indicating their feeling that whatever its convenience, money did not alter the fundamental processes of production and distribution, which could conceivably be carried on without it.

Such an attitude contrasts with the emotional intensity displayed toward money by many people. In part this emotional attitude results from transferring to money the intensity of desire for the things it will buy. To a greater extent, it reflects the fact that money incomes and wealth are, for many people, indexes of prestige, social status, and achievement in the eyes of others and of one's self. Under these circumstances, the actual consumption of real goods may become, as Thorstein Veblen suggested, a means of calling attention to one's income and wealth, rather than the enjoyment of utility intrinsic to the goods themselves. Because money is the focal point in the emotionally intense quest for security, status, and self-regard, it has acquired for many individuals a *mystique* which contrasts greatly with the purely utilitarian status accorded it in traditional economics. This dualism between mystical and practical appears throughout monetary history.

For the individual, the *mystique* of money manifests itself chiefly in the pervasive association of money with the things it will buy—with income, wealth, and their psychological ascriptions. We say that a man "has a lot of money," when we really mean he has a large income or great wealth, although cash itself may constitute only a small portion of his assets.[1] Many people desire to accumulate money itself, a desire which appears pathological in the miser, more reasonable in the numismatist. Psychologists observe that some people express frustration by dreams of finding money and also that in experiments coins appear larger to children of poor families than to more prosperous youngsters. Photographic reproductions of United States coins (prohibited until recently) are now extensively used in advertising to catch people's interest and elicit an emotional response. Thousands of people each year visit the Bureau of Engraving and Printing to watch currency being created—people who would never think of going to see the Government Printing Office. And if we took a poll, asking people what single improvement in their lives they would choose first, no doubt many of them would reply, "More money." In these and other ways our society expresses its mystical veneration for money.

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[1] Consider the following (tongue-in-cheek) passage from a children's storybook: "Now the City was a place where Mr. Banks went every day—except Sundays, of course, and Bank Holidays—and while he was there he sat in a large chair in front of a large desk and made money. All day long he worked, cutting out pennies and shillings and half-crowns and threepenny-bits." P. L. Travers, *Mary Poppins*, Reynal & Hitchcock, Inc., New York, 1934, pp. 3–4.

Such matters are principally the concern of the psychologist or the moralist; but the economist cannot ignore them, for the way people feel about money may have important implications for the way they permit it to perform its utilitarian functions. During the heyday of gold and silver money (sixteenth to nineteenth centuries), monetary policies were strongly influenced by semimystical attitudes toward money. The doctrines of bullionism led whole nations to subordinate their national economic policies to the accumulation of gold and silver. Later, the doctrines of *laissez faire* and "sound money" were shaped around the faith that a money system based on precious metals would function beneficially without government intervention. The history of money, to which we shall devote considerable attention, is in large measure a history of public opinion about money.

MONEY AND ECONOMIC WELFARE

Nature of Economic Welfare. Whatever the bullionist or miser may think, most economists do not treat money as a source of pleasure or welfare in itself. The significance of money is to be found in the way in which it influences the behavior of the productive economy. We shall be concerned, first, with the influence of the existence of money as an institution; and, second, with the influence of variations in the quantity of money or in the public's desire to spend it.

The subject of economic welfare has many dimensions, but there is general agreement on the factors most relevant to it. First and foremost, the economic welfare of a group of people depends on their "real income"—the quantity and quality of goods and services which they are able to consume. For the country as a whole, our ability to consume depends on our ability to *produce* the goods and services we want. If an economic system is to generate a high level of economic welfare, it must achieve substantial production of the products people want.

In addition, the economic welfare of particular individuals in the society depends on the *distribution* of the goods and services produced. Most people would agree that distribution should meet some standard of fairness, though they might not agree on what the standard should be. However, it is likely they would grant the desirability of a broad distribution of economic benefits, rather than extreme concentration of income and wealth. And whether or not distribution seems fair to an outside observer, it is important that income recipients should not feel themselves victims of grossly unfair treatment.

In recent years, economists have placed increased emphasis upon the importance of *employment* as a separate factor in economic welfare. High employment is important as a means to high production and wide distribution, but it also has a social and psychological significance of its own. An individual's status in the eyes of others and himself depends in our society partly on his ability to get and keep a suitable job.

Achieving high production and employment and wide distribution of benefits at any one time, however, is not sufficient indication of economic welfare. In a society where individuals attach great psychological significance to the economic aspects of their lives, they are likely to develop an intense dislike for violent and radical changes in economic conditions, changes of the sort which have arisen in the past out of depressions or wars. Furthermore, individuals in our society have been strongly conditioned to expect a steady improvement in their status as a confirmation of their merit and worth. Fulfilling such expectations with a minimum of social friction is easiest in an economy where total output per person is rising. Thus *growth* and *stability* tend to become separate goals in their own right.

Productivity and Its Foundations. In the long run, economic welfare depends on and is limited by the nation's capacity to produce. This capacity is in turn determined largely by the amount of *productive resources* available and by the efficiency with which they are combined. Among productive resources are included land and natural resources (including climate and topography), capital goods such as machinery and buildings, and most important, human effort of many kinds. The *quality* of these resources is also a critical factor. It is desirable that workers be educated and skillful, healthy, and able to work effectively together, accept responsibility, and adapt to change. The quality of the managerial and entrepreneurial personnel is particularly important.

The efficiency with which resources are used depends importantly on *technology*. Advanced technology requires knowledge, but it also requires suitable manpower and equipment to put this knowledge into application.

Even with the fund of modern technological knowledge at his disposal, an individual in isolation could not produce very much. High productivity in our world has been the consequence of social endeavor, the result of organization and cooperative effort by many individuals. This group effort has permitted us to enjoy the benefits of *specialization* in the use of resources. Instead of trying to be self-sufficient or even to produce a single product singlehandedly, most workers in our economy limit themselves to a specialized function. In this manner each can develop a high degree of skill and efficiency in that function, particularly when capital equipment is designed to perform specialized operations also. But specialization creates two enormous problems. One is the problem of organization—what jobs are to be done, and who is to do them? The second problem is the necessity of exchange. Specialization separates the individual's role as producer from that as consumer. He becomes dependent on other producers for the things he wants. The economic system must provide a means whereby the specialized activity of each individual enables him to enjoy the fruits of the specialization of other individuals.

Where does money fit into this pattern? Clearly it is not in itself a productive resource. You can't dig a ditch with it or plow a field. In a pinch, paper currency might serve as fuel or clothing, but its net contribution to human welfare would be negligible. The institution of money makes its contribution to the organization of economic activity by guiding specialization and facilitating exchange. Through the use of money, efficient economic organization can be established without resort to centralized authoritarian controls or coercion. Instead, competitive capitalism seeks efficiency through individual initiative and enterprise subject to informal patterns of reward and penalty.

HOW THE PRICE SYSTEM GUIDES ECONOMIC ACTIVITY

Scarcity and Choice. Because economic resources are limited in supply in relation to people's desires for the goods and services derivable from them, choices must be made concerning their use. The more resources we devote to one product, the less are left for others. Choices must be made not merely between alternative consumer goods but also between satisfying current consumption desires and devoting resources to increasing future productivity through capital goods, research, and education. Decisions must be made concerning the methods of production to be employed and where and how individual workers and material resources are to be employed. Finally, the system must provide some method for sharing output among consumers, since there will not be enough to satisfy all the competing desires for it.

Every society solves these problems in some manner, but if the solutions are to ensure attainment of economic welfare (as understood in our society), they should manifest the following attributes:

1. The choice of products to produce and relative quantities of each should reflect consumers' tastes and preferences. For most products and services, these preferences are best expressed through individual purchase decisions.

2. Methods of production should be economically efficient, so that they minimize the "real cost" of each product. The real cost of any product involves not only the resources used in making it but ultimately the other products which could have been produced with those resources. If products are produced efficiently, more output can be achieved with a given quantity of resources.

3. As a corollary, each resource should be used where it is most productive. This means, first, it should be used in producing the *products* most desired by consumers, and second, it should be assigned to the *function* in which its productivity is highest.

4. Individual products should go to people who value them highly.

5. Distribution of total output among individuals should meet two standards. First, it should be fair and equitable. Second, it should support and be consistent with the productivity of the system and provide opportunity and incentive for people to work, save, invest, and engage in other productive actions.

If the following social conditions exist, the free market can provide a good method of achieving economic welfare:

1. Producers must be motivated to earn money incomes and have the information and intelligence needed to find remunerative employments and execute the attendant responsibilities. In particular, some people must be willing to assume the risks and responsibilities of entrepreneurship and management. Without enterprise the market economy cannot prosper.

2. Consumers must spend their money with some degree of rationality.

3. Individuals should have freedom to produce and consume. This entails a minimum of government prohibitions, freedom from coercion and fraud, and absence of the private restraints associated with monopoly.

These conditions are never completely fulfilled. The extent to which they exist depends on the social structure of the particular society—the customs, habits, attitudes, and values of the people. Their existence does not guarantee economic welfare, but their absence makes it difficult to achieve.

The Interplay of Buying and Selling. The interactions of exchange in a free-market economy can be described in terms of a circular flow of incomes and expenditures among households and business firms as shown in Figure 1-1. Households obtain money incomes by selling services (personal or property) to business and use their money incomes to buy consumer goods from business. Business firms spend money to employ labor and resources in order to produce goods and services for sale at a profit. However, there is considerable buying and selling among firms, as our diagram shows; but the ultimate goal is production for the consumer market.

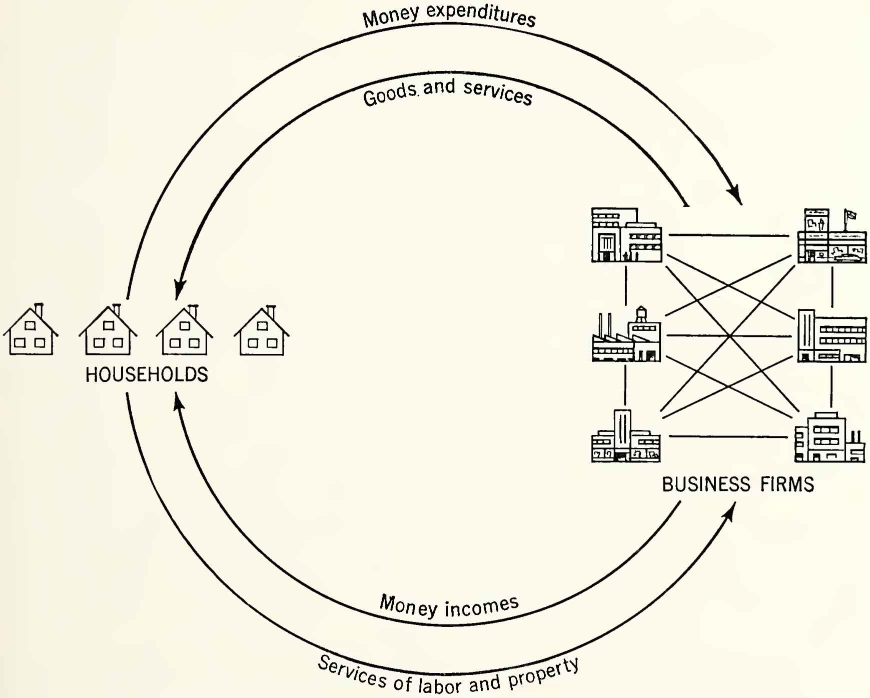

Fig. 1-1. The circular flow of income and expenditures.

Each firm and household enters the market as both buyer and seller, and each is strongly influenced in its purchase and sale decisions by the prices of things it can buy or sell. The existence of a price system makes it easy to compare alternatives, since every product or service is reduced to the common denominator of money value. Without some such common denominator, products and services might still be evaluated directly in terms of each other. This evaluation would entail an exchange ratio between each pair of products, and the number of such ratios would rise much faster than the number of products. With 10 products there would be 45 ratios; with 50 products, 1,225 ratios; with

1,000 products, 499,500 ratios! Few individuals could choose intelligently under such circumstances, and a great deal of time and energy might be wasted in the effort. Money also permits ready comparisons between income and outlay for any economic unit. This is vital for the business firm if its decisions are to be guided by expected profitability.

There are two aspects to the interplay of buying and selling decisions in the free market. At the individual level, households and firms react to existing prices in a manner conditioned by tastes and technology. Socially, such reactions determine what the prices are to be, even if no individual unit controls any particular price.

Determination of Prices. At the individual level, consumers will select those products which yield the greatest utility relative to their price. Workers and property owners will seek the most remunerative employments for their services or property. Entrepreneurs will try to maximize profits by manufacturing products which they can sell at prices that exceed the costs of production. And each will employ those resources which have the highest productivity relative to their price. Each participant is alike in trying to buy cheap and sell dear.

The market price of each product will be determined by the interaction of purchase and sale decisions—demand and supply. Demand for consumer goods reflects consumer preference for one product rather than another, while supply depends on costs of production. Demand for resources by business firms depends on the productivity of each resource in varying uses. This productivity depends in turn on the demand for various finished products for which the resource is useful, on the quality of the resource, and on the technology and organization of production. Resource supply is determined by the quantity of resources potentially available and the willingness of their owners to put them to work.

Final prices will have these characteristics:

1. The price of each resource will be equal to the value it contributes to production in the various uses. Therefore the cost of the resource to any firm will equal the value of other products the resource could produce.

2. The price of each product will equal its cost of production (including a "normal" return to capital and enterprise). The cost consists of the cost of resources used in the product and thus equals the value of other products which could have been produced with those resources.

If these conditions are fulfilled, the directives which the price system furnishes to buyers and sellers will make their decisions consistent with the public welfare. Resources are drawn into high-paying employments; these are the employments where the productivity of the resources is highest, either because the product is in great demand or because the resource is particularly fitted to produce it. The income received by the resource owner gives him a command over output embodying about the same amount of resources as he has contributed, which seems fair. The system provides an incentive for households to augment the value of their resources by education, saving, and job mobility.

Consumers are led to choose products which cost least relative to their utility. Thus they will economize on expensive products which make heavy drains on the scarce resources of the community.

Business firms seek high profits by producing products for which selling prices most exceed costs. The pursuit of high selling price leads firms to manufacture products which consumers strongly desire (in preference to other products which the same amount of resources could produce). Firms will attempt to minimize costs by purchasing resources which are low in price relative to productivity. These resources are not in great demand elsewhere, and thus their use entails little sacrifice of alternative products. Potential increase in profits will also provide firms with an incentive to improve their operations by seeking product improvements in line with consumer desires and by cutting costs. They will therefore undertake research, innovation, saving, and investment.

Thus prices induce producers to provide the things people want and induce buyers to economize on the scarce resources of the community. Through the price system, the decisions of millions of individuals are reconciled with each other. Specialization and exchange are efficiently organized without central direction or coercion. Furthermore, the system provides a continuous sensitive mechanism to adjust to changes in desires, technology, or resource supplies. Just as our sensory organs receive impressions from the outside world and transmit them to the brain, where they become meaningful sense perceptions, the price system registers economic changes and converts them into price variations. For example, increased preference for one product over another would tend to raise the first and lower the second in price. Then, just as our sensory data form the basis for directives of behavior, so the changes registered by the price mechanism induce behavior responses in the economy. For instance, a higher price encourages more production in and attracts resources to the area of high demand.

Such economic efficiency is possible only if firms can determine profits by expressing revenues and costs in a single unit and if consumers, businesses, and resource owners can compare the alternative purchase and sale opportunities in terms of a common denominator of money.

Qualifications. It is fairly obvious that in reality free economic interplay does not function as well as this description suggests. It is difficult to prevent monopoly and private restraint of economic freedom. Incomes may be unfairly distributed, even if based on resource productivity, in cases where property incomes result from inheritance or where personal earnings differ in response to difference in inherited attributes such as skin color or to personality traits which have been strongly influenced by the individual's social environment. Such products and services as national defense, education, public health, police and fire protection, and highways, which might be very desirable, would not be profitable to produce in optimum quantities by private firms. Only through taxation and government spending, or private nonprofit activity, will these be forthcoming. Finally, the free-market economy suffers from one great problem which stems directly from the use of money—instability of total expenditure. Traditional price-system theories assumed that all the incomes created in the productive process would be smoothly respent on current production, so that neither depression nor inflation would occur. In actuality, however, there are numerous ways in which total spending may diverge from the ideal amount. We shall have a great deal more to say about this.

Our economy is far from laissez-faire, but much of the positive government intervention is intended to make the price system work better by ensuring adequate total expenditures and curbing restraint of trade. The vast majority of our working force still choose their occupational and product specialties through voluntary price-directed choice.

MONEY AS A MEDIUM OF PAYMENT AND DEBT

Money and Exchange. Just as money prices help guide specialization, so money as a medium of payment makes possible the exchanges which are necessary if specialization is to succeed. The pattern of specialization in modern society is incredibly complex. Each consumer normally buys hundreds of products and services during a year. There are tens of thousands of different specialized occupations and employments. The exchanges necessary to permit such specialization have two important characteristics which render money indispensable:

1. The necessary exchanges are *multilateral.* Normally, the individual specializes in the performance of a few functions in connection with a few products produced by one firm. But the products he wants come from the specialized activities of thousands of other individuals working for dozens of other firms. Often the individual will not consume any of the products or services which his employer produces. Money incomes provide a means whereby each person's services are put into a

common pool, so to speak, in exchange for claims against all the things in the pool. Without money, individuals and firms would be reduced to bartering, which usually can operate only on a bilateral basis, where each individual A needs to find another who has what A wants and wants what A has—a very restrictive condition. The use of money is particularly important to a satisfactory wage relationship, as comparison with the infamous "truck system" of paying wages in goods well illustrates.[2]

2. Economic activity takes place under conditions of *uncertainty and change*. Changes in consumer tastes, in resource availability, and in technology are continually disrupting the pattern of specialization and exchange. Money provides a means for flexible adaptation. Individuals can change jobs without having to alter consumption patterns, and vice versa.

Money is advantageous in exchange because it is a "bearer of options" —it provides general purchasing power in the exercise of which the holder enjoys wide freedom of choice. First, he is free to work in the production of any product or to supply a service whether or not he himself wants to consume it. Second, he is free to subdivide his purchases among many different sellers. Third, he can change his spending pattern from what it has been in the past. Fourth, he has the freedom to spend all his money or to hold on to it until later.

Like most freedoms, those conferred by money entail risks. Individuals may use their freedom of choice over commodity purchases in ways which disappoint some producers and resource owners. Demand for certain products may fall, inflicting losses on those prepared to produce them. Individuals may exercise their option to postpone spending, so that the total demand for goods and services falls short of what existing resources might produce.

In the modern world, the actual purchase of goods does not always involve the simultaneous exchange of money. An important alternative is the use of "book credit," as exemplified by the charge account. The buyer agrees to pay later for goods received now, and the seller records the transaction and subsequently bills the buyer. Book-credit transactions differ from other credit transactions in that there is no actual loan of money. Similar principles are involved with such limited payment devices as gift certificates or subway tokens. Possession of any of these may be as good as having money for the individual; but we do not regard them as money because they do not circulate from person to person as money does. Nor have they in the past conveyed the breadth of purchase option that money provides—although the recent development of widely acceptable credit cards has narrowed the differential. Further, such transactions media always involve prior or subsequent money payments. In effect, they change the timing of payments but do not really reduce the volume of actual money transactions.

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[2] A working man testifying before a government commission in Britain in 1845 described his problems under the truck system as follows: "When Saturday night came I had to turn out with a certain quantity of meat and candles or tobacco or ale or whatever I had drawn in wages to dispose of at a serious loss. I used to take a can of ale to the barber to get shaved with, and a can to the sweep to sweep my chimney. . . . I was obliged to take a pound of candles at sevenpence and leave it for the newspaper, the price of which was fourpence halfpenny. I used to take my beef at sevenpence a pound and sell it to the coal woman . . . for fivepence, and any bit of sugar or tea or anything of the kind that my employer did not sell, I used to get from the grocer by swapping soap or starch. . . . " Quoted in L. C. A. Knowles, *The Industrial and Commercial Revolutions in Great Britain during the Nineteenth Century*, E. P. Dutton & Co., Inc., New York, 1933, p. 88.

Money, Credit, and Capital. Money has also contributed to economic productivity by serving as the medium in which debt claims are expressed, incurred, and discharged. Because money facilitates such transactions, individuals become more willing to borrow and to lend. Ease of borrowing contributes to ease of capital investment. Capital goods such as machinery and buildings can greatly enhance economic productivity, but they must be produced and acquired before increased productivity occurs and before the added revenues from it are received. Facility of borrowing increases the amount of capital which individual firms can acquire. Out of the resulting higher productivity they can pay interest to the lenders, reap a profit for themselves, and still possibly benefit consumers and workers through cheaper and better products, better job opportunities, and higher wages. Ability to acquire claims payable in a fixed sum of money also encourages a higher degree of saving. In the process, specialization is served by permitting capital to accumulate under the direction of specialized managers while the saving is done by those who can afford it. Saving-investment transactions are very complex exchanges, and it is hard to conceive of them in a world of barter.

In our economy, this specialization is carried one step further by the extensive development of financial intermediaries such as banks and insurance companies. These institutions obtain funds by incurring debts in forms which are directly useful to the public—bank deposits, insurance policies. These funds they invest in "primary securities" issued by ultimate borrowers.

While the existence of money as an institution makes possible money debts, in the modern economy most money has come to consist of debts! Paper currency is composed of government promissory notes, and bank checking deposits are debts owed by banks to their depositors.

MONEY AND ECONOMIC IDEOLOGY

Money as a Symbol of Capitalism. For as long as the institution of money has been known to Western society, money has been regarded as a symbol of acquisitiveness and avarice. We all know St. Paul's observation that "the love of money is the root of all evil." In medieval times the Christian church labeled acquisitiveness as the sin of usury and denounced particularly the lending of money at interest. Following Aristotle, the church held money to be barren and unproductive and argued that interest was really a payment for time, which was God's to dispose of, not man's.

The institution of money made possible the emergence of capitalism, and it was inevitable that critics of capitalism should denounce money itself, as well as the love of money, as a root of evil. Karl Marx tried to show that the existence of money made possible the accumulation of capital, which in turn led to the exploitation of labor through "surplus value." In painting his view of the world to come, he argued that ultimately under communism money would be abolished and goods exchanged directly—a situation made possible by the great abundance of all products which he anticipated.

The defenders of money have not been silent either. Accepting the association of money with capitalism, they have argued not only that money is essential to the economic abundance which capitalism has brought, but that it is ethically good because it enhances personal freedom and responsibility.[3]

Most people today would not question the morality of the institution of money itself. They recognize it as a means to facilitate human actions. If the actions are motivated toward worthy ends and produce beneficial consequences, the means are commendable. On their face, economic productivity and freedom seem desirable. If the existence of money brought a debasement of human personality, its morality as an institution might well be impugned; but greed and avarice existed long before money and cannot be proved to be more extensive since its appearance. More serious exception may be taken to the economic disadvantages attending the use of money—chiefly economic instability. Experience indicates, however, that these can be controlled without impairing the beneficial functions of money.

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[3] Consider the following, spoken by a character in a recent novel:

"To trade by means of money is the code of the men of good will. Money rests on the axiom that every man is the owner of his mind and his effort. Money allows no power to prescribe the value of your effort except the voluntary choice of the man who is willing to trade you his effort in return. . . . Money permits no deals except those to mutual benefit by the unforced judgement of the traders. . . .

"So long as men live together on earth and need means to deal with one another—their only substitute, if they abandon money, is the muzzle of a gun. . . .

"To the glory of mankind, there was, for the first and only time in history, a *country of money*—and I have no higher, more reverent tribute to pay to America, for this means: a country of reason, justice, freedom, production, achievement." Ayn Rand, *Atlas Shrugged,* Random House, Inc., New York, 1958, pp. 388–391. The use of the dollar sign as a symbol by a "capitalist underground" movement in this book is an interesting example of monetary mysticism.

Money under Communism—Soviet Russia. Despite the hostility toward money displayed by Marx, Lenin, and other Communist leaders, the actual experience of the Soviet Union indicates that money is indispensable to an advanced industrial economy. When the Bolsheviks seized power in 1917, the Russian economy was in a chaotic state. Inflation was already under way, and the revolutionary regime soon accelerated this into hyperinflation by issuing vast quantities of currency to finance government expenditures. Prices were doubling on the average of every three or four months in 1918–1921. At the same time extensive direct requisition and free distribution of goods were conducted by the government, which "hoped to effect a transition to a 'natural' economy in which purchase and sale, and the medium with which they were carried out—i.e., money—would have no place."[4]

The New Economic Policy adopted in 1921 retreated from many favored Communist dogmas, including the abolition of money, in order to restore the economy to productive health. Inflation was allowed to continue until 1924. When extensive central planning and collectivization were undertaken in the late 1920s, a system of money and banking was accorded an important economic role, which it still performs. Soviet leaders still pay lip service to the idea that sometime money will be abolished and all transactions carried on in terms of goods, but nothing is being done toward that goal.

Production in the Soviet Union is controlled and determined by the state. The master plans developed by the central government specify the quantitative output targets for individual products and services. The planning operation is carried on initially without regard to money costs and prices. Production of individual items is determined by government estimates of need and by evaluation of resource availability. Techniques of production are determined on the basis of engineering or physical criteria of efficiency. Thus the price system does not significantly determine either the pattern of production or the methods used.

However, production and income transactions are carried on by means of money. Wages and salaries are paid chiefly in currency, which the recipients are free to spend (after taxes and "voluntary" deductions) on whatever products are available. The income system rests heavily on

[4] Arthur Z. Arnold, *Banks, Credit, and Money in Soviet Russia,* Columbia University Press, New York, 1937, p. 54.

piece-rate wages and incentive scales and bonuses. Wage rates serve as one of the guides to occupational choice and as an incentive to work hard. Consumer incomes convey the same sort of purchase opportunities as in a free-market economy, but these opportunities are limited by what products the regime makes available. Furthermore, the Russian economy provides a substantial amount of nonmoney income in the form of health and recreation facilities, housing, etc.

Actual production is carried on by thousands of enterprises, state-owned and controlled, but with managerial autonomy. Their transactions with each other are carried on in money, chiefly deposits with the various state banks. The government uses the banks to keep close watch on the transactions of each enterprise. Each product and resource has a price set by the government, and the individual enterprise is told by the planning authorities how much to produce, how to produce it, to whom to sell it, and from whom to buy inputs. But revenues, costs, and prices do influence managerial policies. Managers are encouraged to maximize the difference between money costs and money revenues by increasing the efficiency of operations, so that the amount of production yielded by given resources is enlarged. The "profits" any enterprise is making are treated by the central authorities as an important indication of its performance.

Prices of industrial products are generally set on a cost-plus basis, with variations to stimulate production or use. This kind of price setting does not allocate resources to their most productive uses, since individual enterprises are not supposed to depart from the resource inputs specified by plan. However, the enterprises often can bring about modifications in input plans where cost savings can be shown. A more subtle difficulty arises from the fact that prices do not adequately reflect capital costs, since no allowance is made for interest (another instrument of bourgeois exploitation). However, reports from Russia in 1959 indicated great concern by Russian leaders for increasing the rationality of the price system and greater willingness to use "bourgeois" economic concepts to do so.

Prices of consumer goods are generally set at levels at which the output permitted by the plan can be sold. Retail prices of most products carry large markups over cost. Most of the markup consists of the so-called turnover tax, the chief source of state revenue. In some instances, prices have been deliberately set below the equilibrium level as a propaganda device. In such cases, the supply has often fallen short of the quantity desired, and many consumers have been unable to buy at the listed prices.

Although the basic economic plans are constructed in terms of real resources and products, the central planners also construct plans on a money-flow basis as a guide to setting prices, taxes, government loan policies, etc. Ideally, these policies would keep consumer incomes roughly equal to the value of consumer goods available at current prices; but actually the Russian economy has frequently exhibited an inflationary bias. Such economic policy has expanded money incomes to keep production incentives high but has failed to make similar expansion in the output of consumer goods. Instead, large quantities of resources have been diverted into capital investment or military projects. During World War II this disequilibrium became so extreme that in 1947 the Soviet government executed a monetary reform in which the existing currency was abolished and a new form substituted.

Clearly, the Russian economy relies on money as a standard of value and as a medium of payment; but the price system is subordinated to the decisions of the central planners and does not provide the kind of guidance to production and distribution that it does in a free-market economy.[5] Why have the Russians found money so indispensable? The following reasons may be cited:

1. A desire to use money wages to allocate labor and spur incentive. With an industrial working force of nearly fifty million workers, direct administrative assignment of every worker from a central agency would be incredibly difficult. Using wage incentives does not prevent the state from using direct assignment for special cases, of course.

2. The convenience of money for the distribution of particular products to particular individuals. This function occurs so smoothly under the price system that we tend to forget its complexity until an alternative is tried. Too often the alternative, under conditions of scarcity, is simply distribution on an equal per capita basis, a process which ignores differences in needs and preferences.

3. The desire to use the profit motive as a test of and spur to managerial efficiency.

4. Recognition of the usefulness of the banks as additional checks and controls on the managers of industrial firms.

Some socialist economists have argued that only in a socialist economy can all the advantages of the price system be achieved. For instance, Oskar Lange argued that socialism could avoid the distortions resulting from private monopoly and property incomes and still operate an economy in which prices would serve as efficient guides to economic activity.[6]

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[5] Information on the contemporary Soviet economy is chiefly from Harry Schwartz, *Russia's Soviet Economy*, 2d ed., Prentice-Hall, Inc., Englewood Cliffs, N.J., 1954.

[6] Oskar Lange, *On the Economic Theory of Socialism* (B. E. Lippincott, ed.), University of Minnesota Press, Minneapolis, 1938 (originally published 1936 and 1937). Lange's observations are of more than academic interest because at this writing (1959) he is one of the chief economic ministers in the Communist government of Poland.

THE PROBLEM OF AGGREGATE MONEY EXPENDITURES

Money as a Store of Value. One of the options conferred by possession of money is to spend now or to wait. Individuals may hold on to money as a store of value, a claim against goods and services which can be exercised at will. Two aspects of money in this role are important:

1. Money has many competitors or substitutes as a store of value. Some of these are assets whose values are fixed in terms of money, such as savings bonds or savings deposits. These can be easily converted into money, but cannot be spent directly. Sometimes they are called "near money." Other financial assets such as stocks and bonds may have fluctuating market prices. Besides these, all manner of goods can conceivably serve as stores of value, if one can either consume them directly or sell them when desired. But money is the only store of value which can be spent *directly*. We say it possesses complete liquidity. Other assets possess advantages which money lacks—some yield income, some may rise in price, others yield consumption utility. These advantages may vary in degree from time to time, so that the attractiveness of money as a store of value is not constant.
2. Money held is money not spent. Variations in the desire to hold money idle may cause undesirable variations in spending. Increases in the desire to hold money may reduce spending and cause production and employment to fall. Decreases in the desire to hold money may increase spending, which can cause inflationary price increases if the economy is working near full capacity.

Spending and Welfare. In the long run, economic welfare depends on the resources available and the efficiency with which they are organized. The economy's capacity to produce always sets limits beyond which its productivity cannot rise. But in the short run, economic welfare may fall seriously short of its maximum potential. Economic welfare requires that there be an adequate (but not excessive) level of money *demand* (expenditure) for currently produced goods and services.

Production and employment in a market economy depend on the prospect that entrepreneurs can gain profits by selling their output at prices which exceed the cost of ingoing resources. Whether they will be able to do so will depend on the amount of money people are willing and able to spend on their products. If the total demand for goods and services is too low, firms will reduce production and resources will be unemployed. Total output and real income will fall below their potential, and maximum economic welfare will not be achieved. During the 1930s this problem afflicted the United States and much of the rest of the industrial world. Production in this country fell short of its maximum potential by billions of dollars each year, and millions of workers who desperately wanted jobs were unable to find them. On the other hand, the demand for goods and services can rise so high that firms will be employing all available resources and will be unable to increase production further. Increases in demand under such circumstances can lead to rapid inflation of price levels, with adverse effects on the value of money and the distribution of incomes and wealth. Such was the case during the period 1942–1952, when excessively high levels of spending pushed prices up to twice their prewar level.

As we shall demonstrate later, the economic system always creates enough current income going to consumers, businesses, and government to purchase the current output at current prices. If each economic unit spent all its income as it was received, the flow of spending would be just adequate to keep the economy stable. In practice, however, some units spend more, and some less, than their incomes. Even this need not create instability if the surpluses which the savers try to achieve are just equal to the deficits desired by the dissavers. But the intended surpluses and deficits seldom match up exactly. Savers may wish to accumulate money as a store of value and their savings may not become available for spending by others. However, the deficit sectors may finance their spending by reducing holdings of cash, or out of newly created money, so that they need not use current saving. If the first tendency predominates, spending may be too small. If the second predominates, it may be too large.

Controlling the Quantity of Money. Every money economy faces the problems of determining what the quantity of money shall be and how it shall change. The quantity of money is one of the influences on total expenditures, and variations in the quantity of money can be judged according to whether they lead to patterns of total spending which are beneficial or harmful. However, variations in the quantity of money often do not produce proportional effects on spending. And spending is influenced by many factors besides the quantity of money.

Historically, the manner in which the money supply behaves has often been determined by the choice of the type of money to be used. A monetary system based on gold and silver coins, for instance, would normally produce variations in the money supply proportional to variations in the nation's stock of monetary metals resulting from production, nonmonetary uses, import, and export. In a monetary system where bank notes and bank deposits constituted the bulk of the money supply, variations in the quantity of money would result from variations in the volume of bank loans.

However, another influence on the quantity of money has been present throughout monetary history, irrespective of the type of money in use. This has been the habitual reliance of needy or impecunious governments on increases in the money supply as a sure-fire method of financing expenditures. In early times, monarchs achieved this by reducing the precious metal content of the monetary units. More recently, governments have issued paper money to cover expenditures—the expedient of our Revolutionary and Civil Wars. Nowadays they do it by the more roundabout process of "borrowing" newly created deposits from banks.

Precious metals, bank lending, and the exigencies of government finance have been the factors which long determined our money supply, and they still exercise a substantial influence. But, each has at times caused inappropriate variations in the supply of money. Gold exports and reduction of bank lending have often come during periods when spending was already declining, thus aggravating the tendencies toward depression and unemployment. Large increases in the money supply through government spending have caused serious inflations—every major war in our history has been financed partly through new money and has produced a substantial inflation.

Consequently, few contemporary students of money believe that its quantity should be left to the uncontrolled variations of precious metals, bank lending, and government finance. Most agree with the noted nineteenth century financial writer, Walter Bagehot, that "money will not manage itself," and that the government should attempt to control and vary the quantity of money with a view to producing the best possible pattern of total spending. This means, first of all, that the government should prevent the money supply from being an active cause of undesirable changes in spending. Second, the government should try to manipulate the money supply so as to reduce or eliminate undesired fluctuations in total spending arising from private spending decisions. We shall investigate in detail how these results may be sought, and see to what extent they have been achieved.

The Pathology of Money—The German Inflation of 1919–1923. One of the most interesting and important illustrations of what can happen when money gets out of control is the example of Germany in the years following World War I. The German government had financed the war almost entirely by borrowing, and much of this borrowing had led to the creation of new money by the banks. By 1918, prices had roughly doubled their prewar levels. Germany's economy emerged from the war in relatively strong condition, but the terms of the peace settlement stripped her of important territories and capital goods such as ships and railway equipment. In addition, the Allies imposed a burden of reparations (to be paid in gold) which most contemporary economists recognized as exceeding Germany's capacity to pay.

A vicious circle soon developed. The burden of government expenditures for reparations and reconstruction increased much faster than taxes could be levied. The resulting deficits were financed by loans from the Reichsbank (the German central bank)—loans made in the form of newly created deposits and bank notes. Deficit spending and newly created money pushed up prices in an economy where resources were fully employed. As prices rose, business firms became more eager to borrow money to speculate or to expand productive facilities. Loans were readily expanded by the Reichsbank and private commercial banks, further increasing the volume of bank notes and deposits.

By 1921, prices had risen 16-fold over those of 1918. The quantity of paper marks in circulation had risen from less than 7 billion marks in 1914 to 140 billion in 1921. The vicious circle grew worse. The price of gold advanced with each step in the inflationary process. Thus each gold purchase led the government to issue more money, which in turn made the next purchase of gold even more costly. During 1922, prices rose 30-fold.

In January, 1923, the French, feeling that the Germans were dragging their feet on reparations payments, moved an army of occupation into the industrial Ruhr area to seize coal- and steel-producing facilities. The German government fought back by opening the floodgates of paper money. By subsidies, it encouraged business and labor in the Ruhr to refuse cooperation with the French. Despite the ever-growing rate of price increase, bank credit remained available on relatively easy terms. The supply of paper currency, which increased 10-fold during 1922, increased during 1923 250-million-fold, from 2 trillion marks to nearly 500 *quintillion* marks. Prices skyrocketed—10-fold increase in August, 25-fold in September, 300-fold in October, 100-fold in November.

With the dizzying decline in the value of money, people rushed to spend it as rapidly as they could. Wages were paid as often as twice a day, and workers rushed to the factory gates to hand the money to family members to be spent. People bought anything they could find, whether they wanted the goods or not, realizing that almost any goods were a better store of value than money. Business firms rushed to borrow money from the acquiescent banks and hastened to pile up inventories and construct capital facilities. Going into debt became attractive, since debts could soon be paid off in money of much less value. Thus the increase in the rate of expenditure (velocity) of money helped spur inflation, as did the increase in the money supply itself which resulted from the government deficits and bank credit expansion.

By 1923 the inflation led to the disorganization and demoralization of the German economy. The price system was totally incapable of serving as an adequate guide to production and distribution. Workers were attracted away from their former jobs in order to spend their money, engage in such direct production as gardening, despite low productivity, or seek easy money through speculation. Efficiency of production was greatly reduced, since costs of resources bore no relation to their relative scarcity and productivity. Distribution became chaotic. Although industrial wages kept up fairly well with prices, other salaries, notably those of government employees, fell far behind. The worst injustices befell holders of fixed-value assets, notably the bonds issued by the German government during and after the war. Business firms and farmers were sometimes able to make great gains, although many found their costs as well as their revenues rising.

At the end of 1923, officials in the German and Allied governments finally united to stem the tide of catastrophe. The troops were withdrawn from the Ruhr, reparations payments scaled down, and foreign loans extended to Germany. The German government cut its expenditures, raised taxes, and halted the runaway expansion of private bank credit. The old mark currency was removed from circulation and a new currency issued in exchange, in the ratio of one mark of the new for one trillion of the old. Curbing deficits and credit expansion prevented further increases in the quantity of money, while the currency exchange helped restore public confidence and reduce the volume of spending to more normal levels. The inflation stopped.[7]

Some of the significant facts about the inflation can be summarized as follows:

1. The process of inflation can become a cumulatively worsening process, in which price increases interact with rises in the quantity and velocity of money. The German case was particularly bad because the government made little effort to follow tax and credit policies which would halt the cumulative process. Under more normal conditions, automatic increases in tax revenues and lack of bank reserves would help check this runaway process.

2. The inflation was socially disastrous in many ways. One of the most pervasive evils was the destruction of incomes and property in the form of bonds and insurance policies belonging to the thrifty middle class. Many of these people were alienated from the democratic parties of the Weimar government and were ripe for the temptations of extremists.

3. In its extreme phase, the inflation was also disruptive of production and distribution. Although industrial production expanded during the earlier years, in 1923 it fell by about 40 per cent from the 1922 level.

4. The inflation helped to create maladjustments in the structure of capital goods and in industrial organization. Giant firms were created with great power concentrated in a few hands. Productive capacity

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[7] Edwin W. Kemmerer, *Money,* The Macmillan Company, New York, 1938, pp. 271–317; Frank D. Graham, *Exchange, Prices and Production in Hyper-Inflation: Germany,* 1920–1923, Princeton University Press, Princeton, N.J., 1930.

was constructed beyond the needs of the economy under normal conditions.

5. The end of the inflation brought a period of depression and unemployment before normal relations of production and distribution could be restored.

The last echo of the inflation was the most devastating. The German economy had recovered by 1929, when the world economic depression struck Germany with particular force. The government might have been able to reduce the shock by such policies as exchange-rate depreciation and government deficit spending, but it shunned these devices because of their association with the hyperinflation. Instead, a disastrous policy of deflation was tried in an attempt to squeeze down wages and prices. The effects on production, employment, and morale were intolerable. More than half the electorate became supporters of either the Nazis or the Communists, both of whom favored destruction of parliamentary democracy. In 1933 Adolf Hitler became Chancellor, and the world marched inevitably to World War II and its frightful consequences, still much with us.

Germany's experience was not unique. Similar episodes occurred in Poland, Russia, Hungary, Austria, and other countries after World War I. Hungary, Greece, and others went through similar nightmares during and after World War II. China endured a hyperinflation in the 1940s which contributed to the triumph of the Communists there.

In other countries, a different process of steady erosion of the currency has gone on, never quite achieving the runaway status of hyperinflation but lasting much longer. The French franc began to deteriorate during World War I, and the process continued without much letup until the late 1950s. In 1959 the De Gaulle regime announced the creation of a new "heavy franc" equal to 100 old francs. Significantly, the "heavy franc" is equivalent in dollar value to the pre-1914 franc. A similar erosion of value has been at work in several South American countries. Such inflation has resulted mainly from protracted government deficits and easy credit. Although the social consequences are by no means as severe as in Germany, such a process makes great changes in the whole nature of money, credit, debt, and economic life.

The Value of Money. The cases just cited are instances in which excessive expenditures led to a decrease in the value of money, for the value of money is measured by what it can buy and thus varies inversely with the price level.

The functioning of money in all its roles may be impaired if its value is not relatively stable. For instance, the accounting practices of business concerning capital costs presuppose fairly stable prices. Substantial changes in prices may cause accounting profits to diverge from economic profits, with a resulting loss in the efficiency of resource use.

If price changes are anticipated, buyers and sellers begin to speculate on the future, and current prices cease to function well as directives to economic activity.

The use of money as a standard for debt contracts and as a store of value also presupposes relatively stable value. With unstable money, debtors or creditors may be subjected to unexpected losses. Price changes may cause arbitrary shifts in the distribution of income and wealth which are much resented by the victims. Yet if people come to expect monetary instability, they may cease to rely on fixed-money-value debts or to hold money as a store of value. If so, neither function is likely to be performed as well as it would be by stable money.

SUMMARY

Money as an institution is valuable because it facilitates economic productivity. As a unit of account, in which prices are stated, money makes possible the price-profit-cost comparisons needed to permit the price system to allocate resources efficiently. Price directives guide specialization into complex patterns without central control or coercion. Money as a medium of payment facilitates the patterns of exchange needed to make specialization workable. Money as the unit of debt and credit promotes saving and investment and thereby makes possible the benefits of capital formation on productivity and permits specialization in the use of capital. Although money and capitalism evolved together historically and although Marx and other critics of capitalism denounced money, the experience of Soviet Russia shows that money as a unit of account and medium of payment is indispensable to an advanced industrial economy, even when production decisions are not based on price-profit considerations.

The quantity of money affects economic welfare through its relation to total expenditures. Spending may vary because the money supply varies or because of changes in people's willingness to hold it as a store of value. If total spending is too low, resources will be unemployed and the economy will be depressed, as in the United States and Europe in the 1930s. If spending is too high, price inflation may create its own detriments to economic welfare, as in Germany in the 1920s. In the past, variations in the money supply were often left to market forces, but in the modern world, governments have accepted the responsibility of manipulating the quantity of money in the public interest.

PLAN OF THE BOOK

In the following chapters, the topics touched on here are developed more fully. In the next chapter, we deal with the evolution of money and the various forms it has taken. Then in Part 2 we examine in detail the monetary system of the contemporary United States, with emphasis on the manner in which changes in the money supply take place and are controlled by the government.

Part 3 proceeds to the analysis of total spending. Here we analyze the influence of spending on production, employment, and prices and examine the causes of variations in spending. Part 4 takes a broader look at the nation's financial system as a whole, with particular reference to its relation to saving and investment.

In Part 5 international monetary and financial matters are discussed. Some of the historical threads are picked up from Chapter 2 and end in a more detailed analysis of monetary and financial developments in the twentieth century. The historical emphasis continues in Part 6, which presents an account of the monetary and financial history of the United States. This order was chosen with the belief that the theoretical analysis of the earlier parts is useful in understanding evolution of institutions and policies.

Since a basic use of theory and of historical information is as a guide to subsequent action, the book concludes with a discussion of contemporary problems in monetary policy. This subject is placed last because it is what everything else is leading up to.

In much of the book (notably Part 3) emphasis is on the relation between money and the volume of spending. Such an emphasis should never divert attention from the fact that money is important because of its relation to the productive economy in which real resources of the community are transformed into economic goods and services. We must not fall victims to the money illusion.

QUESTIONS FOR STUDY

1. According to E. A. Goldenweiser, money is "the universal solvent" of economic life.[8] Karl Marx attacked this principle in the Communist Manifesto. "The bourgeoisie . . . has put an end to all feudal, patriarchal, idyllic relations. It has pitilessly torn asunder the motley feudal ties that bound man to his 'natural superiors,' and has left no other nexus between man and man than naked self-interest, than callous 'cash payment.' It has drowned the most heavenly ecstasies of religious fervor, of chivalrous enthusiasm, of Philistine sentimentalism, in the icy water of egotistical calculation. It has resolved personal worth into exchange value. . . . The bourgeoisie has stripped of its halo every occupation hitherto honored and looked up to with reverent awe. It has converted the physician, the lawyer, the priest, the poet, the man of science, into its paid wage laborers."

[8] *American Monetary Policy,* McGraw-Hill Book Company, Inc., New York, 1951, p. 8.

Is it desirable that human relations be so extensively conducted in money terms? Evaluate the alternatives.

2. "The cost of any product is the alternatives which must be foregone to obtain it." Explain this from the standpoint of an individual and from the standpoint of the economy as a whole.

3. According to John Stuart Mill, "There cannot . . . be intrinsically a more insignificant thing, in the economy of society, than money; except in the character of a contrivance for sparing time and labor. It is a machine for doing quickly and commodiously, what would be done, though less quickly and commodiously, without it. . . . " *Principles of Political Economy* (1848).

In what sense is this a useful observation, and in what sense is it very misleading?

4. A proposal popular among Socialists in the past was to create a money system based on labor. Each unit of money would represent a certain number of hours worked, and each worker would receive an amount commensurate with his efforts. How do you think this would work?

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CHAPTER 2

TYPES AND EVOLUTION OF MONEY

TYPES OF MONEY

Commodity Money and Abstract Money. We have defined money as being anything which is used as a general medium of payment and which is denominated in terms of the monetary unit of account. A vast variety of things have achieved the status of money in different societies, and in the Western world, there has been an evolutionary process in which money has undergone great changes.

Although there are many ways of classifying kinds of money, for our purposes they can usefully be divided into two main categories. The first we shall call "commodity money." Money of this description consists of commodities which can be put to nonmonetary use and have some value aside from their monetary status. Commodity money may consist of purely utilitarian commodities, such as nails, tobacco, or cigarettes. Or the commodities may be items whose nonmonetary uses are religious or artistic—gold and silver, jewels, beads, shells. Commodity money may be "full-bodied," in which case the commodity value is approximately equal to the monetary value; or the money may have a commodity value well below its monetary value. (The monetary value cannot be less than the commodity value, or the commodity will cease to serve as money.) In our monetary system, the only commodity money consists of metal coins. Although the coin object itself is not a commodity, the metal it contains can be converted to nonmonetary uses.

The second kind of money we shall call "abstract money." This refers to money which has no significant value or use other than as money. Paper currency is abstract money, for even though it is made from a commodity and has tangible existence, in its finished form its commodity value is of no significance. The most extreme form of abstract money is a bank deposit. Bank deposits are regarded as money because with the proper arrangements they can be spent directly, that is, by writing checks. As we shall see, such bank deposits make up the bulk of our money supply and provide the medium for most of the payments in our economy.

Origins of "Moneyness." In an important sense, money is a social *institution.* The status of money is conferred on things by their social acceptability. Nothing possesses "moneyness" intrinsically; it must be earned. Of course, the individual treats money as money because other people so regard it and will accept it in payments. For society as a whole, the monetary status of commodities has generally evolved from spontaneous social usage, and this has been true of such abstract forms as checking deposits as well. There must be consistency between the money a society uses and its broader pattern of institutions and ideas. Just as a currency of shells or beads would be inappropriate for a modern industrial economy, so would efforts to use bank deposits have been badly out of place in a less developed society lacking the framework of law and custom required.

Some economists have argued that money is a creation of the state. As a historical generalization, this is questionable. However, the modern money supply is either issued directly by government or greatly influenced by programs of banking control and protection. The government may influence the acceptability of particular types of money by agreeing to convert one into another or accept them in taxes. It may bestow legal-tender status on types of money, thus obliging creditors to accept them in payment of debts and forbidding sellers to demand payment in some other medium if legal-tender money is offered.

Nevertheless, public attitudes toward money do set limits beyond which government monetary policies cannot go. In particular, the government cannot, in a free economy, set the purchasing power of money over commodities by decree. History abounds with instances where government-created money was rejected by the public and lost its value. The Continental currency of the Revolution and the Confederate paper of the Civil War met this fate. And consider the unwillingness of the American public to use silver dollars, two-dollar bills, or the zinc-coated "white" cents of World War II. Government has great power over the monetary system, but its control is not unlimited.

EVOLUTION OF MONEY

How It Started. The history of money demonstrates a remarkable capacity of human society spontaneously to generate useful and functional social patterns. We have seen that money as a standard and a medium is virtually indispensable to an economic system characterized by specialization and multilateral exchange and by uncertainty and change. History furnishes repeated examples of parallel social evolution of extensive commerce and trade along with a system of money which has at first arisen out of commercial usage and in turn reacted upon it. The use of money in the world cannot be traced back to a single "germ," or source. It was not invented once and for all in one time and place. On the contrary, not only the institution of money but important specific types of money can be traced to numerous independent origins.

In Western economic society, money passed through two major phases. In the first phase, things which had value as commodities came to be used as money also. The second phase has involved the progressive substitution of abstract forms of money for commodity money—a process which is now almost complete. Although we regard the second phase as a recent development, it had its inception far back in the past. Evolution of Western money resulted from the interplay between spontaneous private actions of businessmen and policies imposed by governments.

Because we cannot speak of "the" origin of money as a historically unique event, it is useful to examine the process by which so many different societies independently conferred monetary status on things which initially had value as commodities. The development of money in any society has reflected the existence of some social need plus some articles suitable to meet that need. To be suitable as money, a commodity would already have had to possess a high degree of acceptability among the members of the society. In addition, it should be durable, portable, and divisible. General acceptability might reflect the fact that the commodity was a useful article of virtually universal consumption. In pastoral societies, domestic animals often achieved this status. The use of cattle as a medium of exchange and store of value is commemorated in our vocabulary in such words as "pecuniary" and "capital." Tobacco in bulk achieved monetary status in colonial America and, in the form of cigarettes, enjoyed it again in Europe during and after World War II. General acceptability as money also often stemmed from the fact that the commodity was a symbol of wealth and prestige for the owner, perhaps because it was esteemed for religious or esthetic reasons. Such articles often had an advantage over utilitarian products, since they were usually durable and their enjoyment did not entail physical destruction. Gold and silver probably derived their monetary status from previous mystical and esthetic esteem. It is certain that they were regarded as precious metals in many societies independently—among the Incas and Aztecs, for instance, as well as the peoples of the ancient empires of the eastern Mediterranean.

Granted the existence of some commodity which enjoyed wide acceptance and which possessed other suitable characteristics, what social needs might induce people to use it as money? In some cases, people engaged in specialized occupations discovered the inconvenience of barter and turned therefore to an intermediary commodity. Such cases are illustrated by the commodity money of colonial America. Recognizable money systems have also been found in many primitive societies in which the pattern of specialization and exchange was determined by custom and status rather than by deliberate and conscious individual choice. Such societies have little need for money to facilitate their economic operations—yet it developed. Often a commodity of mystical or esthetic veneration becomes a commonly accepted and desired symbol of wealth and is transferred in social ceremonies attending marriage or as compensation for injuries. Ultimately, some members of the society engage in specialized production and exchange their product for the money needed for ceremonial use. In the end, the money comes to be used chiefly in market transactions rather than in ceremonies—but many primitive cultures do not get that far.[1]

Money in Primitive Societies. A few examples from anthropological studies will illustrate the pervasiveness of the evolution of nonutilitarian commodities into money even where the economic organization of the society does not seem to require its use.

1. Among many American Indian tribes, wampum of beads or shells was widely used. Because of its durable, portable, and divisible nature, this was well suited for monetary use. For the Indians, accumulation of wampum was an end in itself, since it was worn for decorative or religious purposes and its possession was regarded as conferring prestige on the owner. Although most of the economic activities of the tribes were performed on a collective basis through patterns based on tradition and status, individual trading to obtain wampum did occur. In the seventeenth century American colonies, white settlers used wampum not only in trading with the Indians but to some extent in trading among themselves. Ultimately the whites developed cheap techniques for reproducing the beads, and the wampum lost most of its exchange value.

2. The Yurok Indians of northern California used as money dentalium shells, woodpecker scalps, and obsidian blades. These were highly charged with mystical and religious significance. Yurok mythology gave an important place to "the land where money makes its home." According to one anthropologist, "The persistence with which the Yurok desire wealth is extraordinary. They are firmly convinced that persistent

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[1] See A. Hingston Quiggin, *A Survey of Primitive Money*, Methuen & Co., Ltd., London, 1949, especially pp. 3–12, 321.

thinking of money will bring it."[2] Money was used in market transactions, but its chief use was in ceremonies. When a person died, he was buried with money, which was expected to make his afterlife safe and happy. Injury by one person or clan to another might be compensated by payments in money, and a man was expected to pay money to his bride's family when he married.

3. Natives of the island of Yap in the South Pacific have a monetary system based on enormous round chunks of stone, resembling millstones in size and shape. These are prized for their appearance and serve as a visible index of the owner's wealth. They are used as a medium of payment for such specialized activities as fishing and carpentry, although most economic production is self-sufficient agriculture. Many stones are so large that transactions are carried on by exchanging the ownership of the stone rather than its physical possession. Although Western ways and moneys have influenced the life of the natives, they still value and use their stone money.

Money in the Societies of Antiquity. The main stream of the history of Western culture begins with the ancient societies of the Near East—Assyria, Babylonia, Persia, Egypt—which flourished in the period following 4000 B.C. Each of these achieved a high stage of development in economic productivity as well as in culture. They were fundamentally agricultural and drew their prosperity initially from the great fertility of the valleys of the Nile, Tigris, and Euphrates. At their peak, however, they possessed a high degree of urbanization, commerce, and manufacturing. In their early phases, these societies developed the principles of simple metallurgy, which not only brought a great advance in productive technology but also opened the way for widespread use of gold and silver. These metals appear as objects of esthetic and religious veneration early in the history of this area.

These great empires were not organized chiefly on the basis of free enterprise and market relationships but rested mostly on relations of a feudal or servile sort. Nevertheless, each contained a mercantile element and did rely to some extent on money. In particular, Babylonia had developed by 2000 B.C. a money system based on silver. No coins were used, and metal passed by weight. "Shekels" and "talents" were used as units of account; they were actually measures of weight which originated with grain. It is possible that standard ingots, stamped to attest their fineness, were used. Such use of metal was also practiced in Egypt, Greece, and among the Hebrew tribes of the Old Testament. Much later, units of weight survived in such monetary units as the pound, livre, lira, penny, and mark. And in Babylonia instruments resembling modern bills of exchange and drafts were in use, possibly for payments as well as credit.[3]

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[2] A. L. Kroeber, *Handbook of the Indians of California,* Smithsonian Institution, Bureau of American Ethnology, Bulletin 78, 1925, p. 40; quoted by Quiggin, *op. cit.,* p. 294.

Coinage originated spontaneously in many places. Coins have been discovered which are over 5,000 years old. The earliest ones were irregular lumps of metal with some identifying mark impressed on them, which may have guaranteed fineness but not weight. The kingdom of Lydia in Asia Minor (land of fabled Croesus) produced such coins about 700 B.C. to promote the export of precious metals which it produced in abundance.

By that time there was under way a flourishing development of commerce and civilization in the territory touching the eastern Mediterranean. At first the dominant role was played by Phoenician and Syrian traders, but soon the predominance shifted to Greece. The merchants of that age were the direct predecessors of the modern businessman. Their commerce was profit-seeking and relatively unrestrained. These societies were not capitalistic, but a mixture in which feudal and traditional elements still figured prominently. Nevertheless, their production and commerce represented specialization and exchange of the sort in which money is highly desirable, and it was from this point that money became firmly established in Western culture.

The Greek city-states generally adopted coinage systems in the sixth century B.C. which were well managed and produced an artistic product. Their coins, mostly of silver, were intended to be of uniform weight as well as fineness and were undoubtedly used in domestic transactions without the necessity for weighing at every exchange. However, Sparta for a time used a system of iron coins whose metal value was much below their money value. Greek merchants also used transferable book credits and promissory notes which may have passed as money.

Although some coinage was carried on by merchant groups for their own benefits, in most cases coinage gravitated into the hands of the political sovereigns. In part this was to protect the public interest, but chiefly it reflected the fact that coinage could be used as a source of revenue. The common practice of levying a charge for coinage is still referred to as "seigniorage."[4]

There were chronic difficulties in the way of achieving a circulation of uniform full-bodied coins which could pass without the need to weigh or assay them repeatedly. Private persons had extensive temptations and opportunities to counterfeit coins or to remove some of the precious metal from genuine coins by clipping, sweating, abrasion, hollowing, or other devices. During the ascendancy of Rome, debasement of the coinage became a common means for the political sovereign to meet large expenditures or to pay debts. Thus a given revenue collected in full-bodied coins could support a larger expenditure in debased coins if the latter could be passed at the former value. In the Roman Republic, plated coins were occasionally issued as a wartime expedient. Under the Empire, debasements became common in the second and third centuries. Fineness of coins was reduced until the "silver" coins contained only about 2 per cent silver.[5] When practiced surreptitiously, such debasement was nothing better than counterfeiting. During the later years of the Roman Empire, the coinage prerogative was held by many petty territorial rulers, and the coinage was continually debased until the economy became virtually reduced to a nonmoney basis.

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[3] Paul Einzig, *Primitive Money in Its Ethnological, Historical, and Economic Aspects*, Eyre & Spottiswoode, Ltd., London, 1949, pp. 211–215.

[4] In both Greece and Rome, there was a close affinity between coinage and religion. Images of gods were often used on coins, and coinage was sometimes controlled by priests. In fact, the word "money" derives from the fact that the Roman mint was located in the temple of Juno Moneta.

Money in the Age of Feudalism, A.D. 500–1100. The decay of coinage and of the use of money was soon accompanied by the decay of commerce and of activity in which money was much needed. In the pattern of feudal society into which Western Europe evolved, the basic economic unit was the manor. Each manor was largely self-sufficient, and its internal relations of production and distribution were determined by status and custom. Trade and commerce declined with the collapse of the Roman Empire and received a *coup de grâce* when the spread of Islam cut off most of the trading communities around the Mediterranean. As Europe became predominantly moneyless and marketless, it also came under the church doctrine that any activity undertaken for the sake of profit was usurious and sinful.

The use of money continued to a small extent in transactions outside the manor—the commerce in silks and spices, the transactions of governments and church. Control of coinage was decentralized among feudal lords and widely abused.[6] Significantly, in the Byzantine Empire of the East and in the lands under Islam, both commerce and the use of money were much more widespread. Both of these areas continued to rely on gold coins suitable for the large transactions of flourishing commerce, while Europe came to use silver coins almost exclusively.

Money in the Renaissance, A.D. 1100–1600. The revival of commerce and the rise of national states which proceeded after the twelfth century revived the use of money. Gold coinage rose from its desuetude in Europe just as it was declining in the territories of Byzantium and Islam. The emergence of the absolute monarchs in Europe brought a gradual trend toward centralization of coinage authority, but it was only toward the end of this period that order began to emerge from the chaos of multiple denominations and issues and varying degrees of public and private debasement. A notable step was the effort of Elizabeth I in England to restore the value of the coinage in the sixteenth century.

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[5] Arthur R. Burns, *Money and Monetary Policy in Early Times*, Alfred A. Knopf, Inc., New York, 1927, p. 424.

[6] Henri Pirenne notes one German prince who debased his coinage an average of three times a year during a reign of thirty-two years. *Economic and Social History of Medieval Europe*, Harcourt, Brace and Company, Inc., New York, 1937, p. 112.

The commercial revival which began in Italy also brought important developments in credit and abstract money. There the first recognizable banks were founded about the twelfth century. Their function was initially the traditional one of money-changer. In almost all commercial centers, the circulation of coins included a diverse collection of issues in various states of decrepitude. The money-changer made it possible for individuals to exchange one type of money for another. The earliest banks extended this principle by accepting deposits of coin or bullion and giving the depositor a credit in their books which he could transfer to another person. Such transfers conferred upon these early bank deposits the status of money, although as long as the banker retained all the coin and bullion deposited, his operation would have no significant effect on the quantity of money. Banking on this principle was highly convenient for a center of international commerce and was later embodied in institutions in such northern centers as Amsterdam and Hamburg. Such banks had no necessary relation to the operation of lending.

However, in Italy, Spain, and other southern commercial centers, the lending function developed along with that of money changing. Once the bank deposit became in itself an acceptable means of payment, the depositor did not need to withdraw his coin or bullion to make payments. Thus the bankers found it possible to make loans with a portion of their holdings of precious metal. Such loans brought an increase in the total supply of money, for the depositor retained a deposit credit, which he could spend by transferring it, and the borrower had metal money which he could readily spend.

Since the deposit credit was so acceptable as a means of payment, it soon occurred to the bankers that they need not lend out their gold and silver holdings at all! They could make loans at interest merely by creating deposit credits on their books in favor of the borrowers.

According to Professor Usher, banking in the Mediterranean countries had reached the latter sophisticated stage as early as the thirteenth century. However, early deposit banking was primitive in certain respects, for deposit transfer usually could be made only by oral order in person. It was not until about the sixteenth century that notes which could easily pass from hand to hand came into use. These developed in two important forms—the check, by which deposit credits could be transferred, and the demand note payable to bearer, which the banker might issue to depositors or borrowers.[7] With these developments, banking achieved substantially its modern character—a character which evolved through spontaneous commercial usage.

The early sixteenth century witnessed a great monetary revolution attending the discovery of the treasures of the New World. As precious metals poured in from Peru and Mexico, prices rose, the availability of money greatly increased, and commerce and industry were greatly stimulated. A great social change came about as many feudal obligations, originally expressed in terms of goods and services, were commuted into money terms. This hastened the decay of remaining feudal relations in Western Europe and accelerated the trend toward liberty of economic action in a free market, as exemplified in the burgeoning towns. The spread of money and monetary relationships contributed to the parallel development of personal liberty and of capitalism.

With the influx of treasure, the sixteenth century became an age of considerable monetary mysticism. Under the doctrines of bullionism and mercantilism, the major nations tried to manipulate their foreign relations so as to attract gold and silver and retain them. This objective was in part a rational attempt to avoid the depressing effects of deflation and keep business booming, but with many people it represented an irrational conviction that treasure constituted the ultimate wealth and intrinsically guaranteed their welfare. This obsession with precious metals manifested itself also in the great interest in alchemy—the attempt to transform base metals into gold.

The sixteenth century also witnessed the birth of the dollar as a monetary unit. The term was apparently an Anglicized version of a German name applied to a Spanish coin![8]

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[7] Abbott P. Usher, *The Early History of Deposit Banking in Mediterranean Europe,* Harvard University Press, Cambridge, Mass., 1943.

[8] The flood of treasure from America brought a strong infusion of Spanish coins into world commerce. As Professor Nussbaum puts it, "The most popular pieces, valued at eight reals . . . were termed 'pesos.' In English-speaking countries the pesos came to be called 'pieces of eight' or 'dollars.' Dollar is an anglicization of the German 'Thaler.' Thaler, again, is an abbreviation of 'Joachimsthaler,' Joachimsthal being a Bohemian county whose counts in 1517 produced the silver coin which gained wide reputation as the Joachimsthaler. Its pattern was adopted by the Reich, whence the 'Reichsthaler,' or in English, 'rix-dollar.' The rix-dollar, which developed into a standard type of European mintage, was of approximately the same size and silver content as the peso. The London dealers in foreign exchange extended the name 'dollar' to the peso, which became thereby the 'Spanish dollar.'" Arthur Nussbaum, *A History of the Dollar,* Columbia University Press, New York, 1957, p. 10.

Money in the Seventeenth and Eighteenth Centuries. By the seventeenth century the commercial center of gravity had shifted to the north of Europe and brought with it the techniques of banking and finance prevalent earlier in the south. In England, banking practice evolved from the activities of the goldsmiths. They developed the practice of accepting deposits of coin or bullion for safekeeping and giving in exchange either deposit credits or redeemable paper receipts. Both the deposits and the receipts became acceptable media for hand-to-hand payments. Ultimately the goldsmiths discovered the possibilities of lending out the metal they had received, thus increasing the quantity of money. This development in turn yielded to the stage in which the loans were made directly in the form of deposit credit or paper notes. Banking development in seventeenth century England was climaxed by the establishment of the Bank of England in 1694.

The seventeenth century was a period of currency disorders, but changes in values were unlike the debasements of earlier times. They were undertaken more commonly to ward off deflation when scarcity of money resulted from low production of metals or from trade imbalance. In coinage practices, systematic attention was now given to the ratio between gold and silver. Frequent changes in the relative market values of the metals gave rise to frequent changes in mint values, usually achieved by devaluing the monetary unit.[9] Use of debasement as a revenue source largely disappeared, partly because of the development of new ways of achieving the same results.

The seventeenth century witnessed the first direct issues of paper currency to finance government deficits. The British government issued a modest amount of Exchequer orders, which were government promissory notes and which were used by merchants for payments. In 1690 the colonial government of Massachusetts issued paper currency, and in the eighteenth century such paper furnished a major medium of payment in the American colonies.

More important for Britain, however, was the discovery that bank credit could easily be tapped to aid the government. The Bank of England was chartered in the first place so that the government could obtain a loan, and it continued to be a source of financial aid. Of course, when the government borrowed from the Bank, the latter would create deposits or notes to lend, and the money supply would be increased.

By the eighteenth century, the transition toward abstract money was well under way. Among merchants, the paper promissory notes of banks or merchants or deposit credits on the books of a bank or mer-

[9] B. E. Supple, "Currency and Commerce in the Early Seventeenth Century," *Economic History Review,* December, 1957.

chant, transferable by check or draft, had become major methods ot conducting transactions. Since such money was easily created, it is not surprising that abuse occurred. The most notable example was found in the banking and commercial ventures of John Law, a Scottish adventurer, in France in 1718–1720. A runaway speculation developed in shares of Law's commercial ventures, to which he contributed by rapid expansion of deposits and currency through his bank. Ultimately this "Mississippi Bubble" collapsed amid great public outrage.

Money in the Age of Revolution and War, 1775–1815. The successive events of the American and French Revolutions and the Napoleonic Wars brought vast monetary upheavals and financial unsettlement in the United States, France, and Great Britain. The revolutionary governments in both France and America issued large amounts of paper money. In the United States, the large volume of issues caused prices to rise, and the money depreciated ultimately to the point of worthlessness. However, paper money had served to finance the transfer of needed resources to the government's disposal. In the 1780s, economic depression led some states again to issue paper money; but influential public opinion was so hostile to the idea that the Constitution adopted in 1787 banned such state issues. Most people thought that Federal paper issues were also prohibited by implication.

In France, the revolutionary government issued paper "assignats," which were nominally claims against the vast lands and other property seized from the church and the aristocrats. After 1793, foreign wars and domestic upheavals caused excessive issues, and a rapid inflation of prices soon reduced the value of the assignats virtually to zero. Further issues ceased in 1797. Napoleon, who came to power in 1799, achieved the remarkable record of financing his foreign adventures while keeping the franc on a gold basis. He was aided in this by the credit facilities of the newly founded Bank of France.

During their worst moments of inflation, both France and the United States tried to curb depreciation by price fixing and by making the paper legal tender, with heavy penalties for refusal to accept it. These efforts were unsuccessful. Both countries emerged from the period with one notable achievement, however—both established decimal coinage systems which were vastly simpler for calculations than the involved relationships typified by pounds, shillings, and pence.

The British government also incurred heavy deficits in its wars with France in the period 1794–1815, but financed these by borrowing from the Bank of England. These loans resulted in the creation of bank notes and bank deposits, and before long the Bank was unable to continue to redeem these liabilities in gold and silver. By 1815, inflation carried British prices to a level double that of 1790. Even this, however, was mild by French or American standards. Britain was passing through the most rapid phase of the Industrial Revolution, and the increase in the quantity of money was met by an increase in the production of things to spend it on. All three countries demonstrated how variations in the quantity of money could be brought about through government deficit spending.

The Age of Sound Money, the Nineteenth Century. After Waterloo, Europe enjoyed a century free from major wars. Capitalism became the dominant pattern of economic life, and enterprise was liberated from feudal and mercantilistic restraints. The political trend was toward representative government and protection of individual liberties.

The dominant economic philosophy, derived (with some distortion) from Adam Smith and his followers, was a dogmatic *laissez faire.* Appropriate monetary policies were also dogmatically prescribed. The first principle was that determining the quantity of money was far too important a duty to be entrusted to the government, which was merely expected to establish a monetary unit and maintain it at par with gold and silver. Full-bodied coins of precious metal were the foundation of the system. These were kept at par by free coinage, free movement in international trade, and freedom of melting. In this way each nation would find itself on a monetary "standard" which would fix its currency's value in terms of all others and thus provide a uniform international unit of pricing and means of payment. In each country, the quantity of money would be determined by the quantity of gold and would supposedly vary appropriately with changing economic circumstances. The world's money supply would be protected from rapid change. Governments should not, of course, issue paper currency. The experiences of the American and French Revolutions were endlessly cited as proof of this principle. However, the economy might rely on the bank notes and deposits of private commercial banks (which became in fact the dominant media of business transactions in Britain and the United States). To guard against excessive creation of these types of money, the banks should be required to redeem their liabilities in coin upon demand and to confine their lending to short-term loans secured by goods already produced and moving from producer to consumer. Under these conditions, it was expected that variations in the money supply would be appropriate to the state of the economy.

There were varying attitudes toward the metallic standard itself. France and the United States experimented at length with bimetallism, in which the monetary unit was defined independently in gold and in silver. Gold and silver coins would circulate in a country simultaneously only if the prices of the two metals remained at a constant ratio to each other in the open market, and this they never did in the nineteenth century. Shifts in market price ratios often led to the disappearance of one metal or the other from circulation. England avoided this by maintaining the pound on a gold basis and by using silver coins which were worth less as metal than as money. Eventually the other countries followed suit, and by 1900 the gold standard was the accepted norm.

The nineteenth century attitude toward money was paradoxical. It implied a fairly rigid restraint on the growth of the money supply just when the world's output was growing by leaps and bounds. In practice, the implied restraint was avoided by erecting an ever-growing superstructure of bank notes and deposits on the gold reserve. In the United States, government paper currency was added to this after the Civil War. The paper notes and bank deposits were reconciled with the dogma of sound money by their convertibility into coin on demand.

However, the compromise was not altogether successful. Slow growth in the money supply contributed to painful price deflation, especially in the last half of the century; and the peculiarities of fractional reserve banking and currency issue produced several severe monetary panics.

The Twentieth Century. The composition of the money supply has not changed much in the United States and other industrial countries since 1900, but monetary systems have undergone vast transformation, from relatively automatic adjuncts of private commercial decisions to instruments of government economic control. The transformation was started by World War I and carried to conclusion by the world depression of the 1930s.

World War I forced most of the belligerent countries to go off gold temporarily, but the wartime inflations and postwar hyperinflations which afflicted so many countries confirmed the faith in gold. With few exceptions, nations set their sights on returning to the gold standard as a way of restoring national economic life, even though in Britain restoration of the gold standard imposed heavy deflationary pressures and caused unemployment and social unrest in the 1920s. By 1929 most of the world was back on the old basis, but with pitifully small gold reserves.

When depression struck in 1929, country after country was hit by panic demands to convert currency and deposits into gold. Panic caused money supplies to dwindle and bank loans to be contracted. Once depression had engulfed the world, adherence to gold-standard principles impeded such actions as easing credit and creating more money through central-bank action or deficit spending by governments. In consequence, the sound-money dogma was repudiated. Most countries (including the United States) abolished full-bodied coinage and restricted the convertibility of abstract money into gold. Control over the quantity of money became a matter for deliberate government action, designed to achieve a level of total expenditures appropriate for full employment. Further experience with inflation during and after World War II has altered the objectives of this policy somewhat but has not occasioned any marked retreat from managed money. We shall deal with these monetary developments in the international economy at length in Chapter 13.

AMERICAN MONETARY EVOLUTION

Before 1914. There were no commercial banks in the American colonies, and government paper currency went into disrepute because of the inflation of the Revolutionary War. The Constitution forbade state governments to issue paper currency or to make anything but gold and silver legal tender, while it authorized the Federal government to coin money and regulate its value. A contemporary observer might have been justified in believing that the country had been firmly committed to a regime of gold and silver money.

However, commercial banks grew rapidly after independence. By 1810 the quantity of bank notes and deposits in circulation was three times the amount of coin circulating. The dominant problem of monetary policy from then on was how to get the banks under control. They were numerous, mostly small, often parochial, sometimes incompetently managed, and occasionally dishonest. Left to themselves, they created an unstable pattern of expansion and contraction of the money supply, which aggravated economic instability.

The First (1792–1812) and Second (1816–1836) Banks of the United States were federally chartered institutions modeled after the Bank of England. For a time they exercised some restraining influence on the commercial banks, but the Second Bank went down to defeat in an acrimonious political conflict because of which the idea of a central bank was long discredited. During the Civil War the government established the National Banking System which brought many banks under direct Federal supervision but which did not eliminate the sources of panics and instability.

The Federal Reserve System. In 1913 Congress established the Federal Reserve System in an effort to end banking panics. The System consisted of twelve semiautonomous regional Reserve banks under a governing board in Washington. The individual Reserve banks exercised regulation over national banks and any others which elected to become members of the System. We shall have much more to say about the structure and functioning of the Federal Reserve in the following chapters. Its early operations were disappointing, and it failed to prevent the serious monetary collapse of 1929–1933. As a consequence, it underwent extensive revision in the 1930s and has since demonstrated its capacity to exercise beneficial control. The primary responsibility of the System is control of money and credit in the interests of economic welfare, and it is the chief instrument through which the Federal government regulates the money supply. However, other Federal agencies supervise national banks and manage the program of insuring bank deposits which was begun in 1933.

Contemporary Money. At present, the money of the United States consists of coins and paper currency issued by the Treasury and the Federal Reserve banks, plus the checking deposits of over 13,000 commercial banks. The metal coins represent the smallest denominations and are the only portion of the money supply which has any commodity value. None of our current coins is full-bodied, however. Silver coins contain metal with a market value of about two-thirds their monetary value, nickels and cents much less. Our current use of coins is deeply engrained in custom and habit and is in addition assuming a new advantage because of the superiority of coins in vending machines. Coin and currency are used chiefly in payments of wages and in retail purchases. They possess the advantages of universal acceptability, with minimum danger of forgery or counterfeiting. However, they have disadvantages, too, particularly the danger of loss or theft, especially in transmission through the mails. All forms of coin and currency are convertible into one another. The government maintains a fractional reserve of gold bullion behind the major components of the money supply, but domestic money is not convertible into gold on demand.

Coin and currency are legal tender, but checks are not, and there are many circumstances in which a person may be unable to cash or make payment with a check. In compensation for this inconvenience, however, there are many more occasions on which checks are strongly preferred. They can be written for odd sums and can be carried about or sent through the mail without risk of loss. They provide records and receipts for money spent. For many transactions, therefore, they are preferred to coin and currency. For this reason, it seems unwarranted to regard them as an inferior or secondary form of money. At present, checking deposits constitute about four-fifths of the total money supply, and it is estimated that 90 per cent of money transactions (measured by value) consists of check payments. In 1958, Americans wrote about 11 billion checks with a total value of some $2.5 *trillion.* Since total checking deposits were approximately $100 billion, each dollar of deposits made an average of nearly twenty-five payments as it passed from one depositor to another during the year.

Evaluation. In judging the kinds of money used in a country, three criteria seem appropriate. The first relates to those characteristics appropriate to money's function as a medium of payment. It should be portable, durable, divisible, and safe for those who spend and receive it. Our three types of money do not equally meet all these requirements, but among the three one can usually find an optimum combination. Certainly we would not at present be better off for having to use one type to the exclusion of the other two.

One can also pass judgment on the kinds of money in use by observing how their physical form affects the control of their quantity. A suitable money must be something which cannot be easily reproduced at low cost by private persons, or its supply would be continually inflated and its value reduced. The statement that "money doesn't grow on trees" is doubly significant. Anything which grows on common trees is not likely to be a satisfactory form of money. Our money is limited in quantity by government control of issue and by a strictly enforced prohibition against counterfeiting, rather than by scarcity of the material of which money is made.

Since our money supply consists so largely of bank deposits, a major quantitative influence is the volume of bank lending. Variations in government holdings of gold and silver may also influence the money supply, even if these metals do not become money themselves. Government acquisition of monetary metals tends to increase the money supply, as we shall see in the following chapters. Monetary changes arising from bank lending or from the supply of precious metals may be counteracted by deliberate actions of the Federal Reserve or the Treasury.

Government finance has also exerted a major influence on the money supply in the twentieth century. This influence has not resulted from the crude but straightforward practice of issuing new currency to finance deficits. Rather, the government in periods of large deficits sold bonds to the banks and Federal Reserve, so that the volume of existing types of money was greatly enlarged. Gold-standard advocates would point to the fact that adherence to strict gold convertibility would make such monetary expansion much less easy.

Thus, while our money supply contains the potential to be influenced by bank lending and precious-metal movements, these influences can be counteracted by government action. The government may also be led by expenditure needs to create money to a harmful degree. One of the central problems of this book is to determine what are appropriate variations in the money supply and to see whether the government can be expected to produce them.

The final criterion in evaluating the composition of the money supply is the implication its form has for public understanding of the monetary system. In the past, when money was based on gold and silver, irrational and semireligious attitudes toward money often distorted understanding of its nature and functions. By getting away from precious metals as the "essence" of our money, we have undoubtedly reduced the extent of that type of intellectual misunderstanding. Our money is functional, not mystical. Its general adoption rests on the pragmatic fact that other people will accept it. No one worries much about whether it has "intrinsic" value or is "backed" by something which has.

However, the wide use of bank deposits has led to considerable misunderstanding of how the quantity of money actually varies. Few people understand the manner in which deposits are created and destroyed by bank lending, and particularly the monetary significance of government financial policies. It is probably more feasible to try to increase public understanding of how our money supply is determined than to expect our monetary system to change into something simpler and more readily comprehensible. In the two chapters which follow, we shall examine the different ways in which changes in the money supply come about. After that, we shall analyze the consequences of such changes, with a view to deciding appropriate policies toward the money supply.

SUMMARY

In any society, money is an institution which must be consistent with other social usages and which may arise spontaneously from such usages. The evolution of money has included the following stages:

1. Primitive money, often items of religious or esthetic value, used first perhaps in ceremonial exchanges in a society where commercial specialization and exchange did not exist.

2. Precious metal by weight, probably developing from primitive esteem for ornament and ceremony, but requiring some techniques of assay and measurement. This stage was reached by the ancient empires of the Near East before 1000 B.C.

3. Full-bodied coins, representing metal marked to attest its weight and fineness. These became common in Greece and other Mediterranean commercial centers after 700 B.C.

4. A mixed system including coins and abstract money in the form of transferable private debts. This order existed to some degree in antiquity, but its modern significance dates largely from the Renaissance.

5. Abstract money in the form of paper currency and bank deposits, together with some coins of less than full weight. This is the modern system, brought into existence largely during the Depression of the 1930s.

There has been a close parallel between the development of money and the development of commerce and capitalism. But in the twentieth century, spontaneous evolution has been less evident than deliberate government manipulation.

QUESTIONS FOR STUDY

1. The Romans sometimes issued coins of base metal plated with silver as a form of debasement. Why might this be more unfair in its consequences than merely reducing the silver content of the alloy of which the coin was made?
2. "Money can exist without commerce, but commerce tends to create its own money." Illustrate historically.
3. Suppose the alchemists had succeeded. What would the consequences have been?
4. Discuss the appropriateness of including each of the following in the measurement of the money supply:
    a. Travelers' checks sold by banks or American Express
    b. Obsolete United States coin and currency (which the Treasury will redeem at par in current money)
    c. Subway tokens
    d. A United States savings bond, redeemable on demand
    e. A perfect counterfeit $10 bill

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PART TWO

THE MONETARY SYSTEM OF THE UNITED STATES

CHAPTER 3

COMMERCIAL BANKS AND THE MONETARY SYSTEM

MEASURING THE MONEY SUPPLY AND ITS COMPONENTS

Issues. We have defined money in terms of its functions—it is "that which" serves the functions of medium of payment and unit of account. In the contemporary United States, these functions are performed by coins, paper currency, and the checking deposits of commercial banks. Such deposits are included because they can be spent directly, by writing checks on them, without the need to convert them into coin and currency. We do *not* include in the money supply such liquid financial assets as savings (time) deposits or government bonds. While these can be converted into cash readily, they cannot be spent directly.

When we come to actual measurement of the money supply, several problems arise. If we add up bank deposits and coin and currency, shall we not be double-counting? To avoid this error, we exclude the coin and currency held by banks. Actually, bank holdings of cash are small relative to their deposit liabilities. In our measurement, we do not wish to include all demand (checking) deposits in the money supply. Interbank deposits (deposits held by banks with each other) and the cash and deposits held by the Federal Government are usually excluded. This is done partly to avoid double-counting and partly because the quantities involved are somewhat arbitrary, since the banks and the government have the power to create and destroy money.

After these adjustments, we are left with a money supply consisting of the coin, currency, and demand deposits of business firms, individuals, state and local governments, foreigners, and nonprofit institutions. We shall call this the public's money supply, or the privately held money supply. At times, however, we shall wish to use a more inclusive measure which contains Federal government cash and deposits also; it will always be specially identified when used. Table 3-1 shows the size and composition of the money supply in June, 1958.

These figures emphasize that checking deposits are the largest component of the money supply and account for about four-fifths of the total. The dollar volume of paper currency in turn far exceeds that of coins, the latter constituting less than 2 per cent of the money supply. Both the Treasury and the Federal Reserve banks issue paper currency, but all coins are Treasury issues. The Treasury issues no notes larger than $10, while Federal Reserve notes begin at $5 and rise to the seldom-encountered $10,000 bill (of which some 900 were in circulation in June, 1958).

Table 3-1

The Public's Money Supply, June 23, 1958

(Billions of dollars)

	Amount	*Per cent*
Demand deposits	$109	80
Coin and currency	28	20
Total	$136	100

Detail of coin and currency outside Treasury and Federal Reserve:

	Treasury issue	*Federal Reserve issue*	*Total*
Coin	$2	...	$ 2
Currency			
$1–10	3	$ 7	10
$20–50	..	13	13
$100–10,000	..	6	6
Total	$5	$26	$31
Held by banks			3
Held by public			$28

SOURCE: *Federal Reserve Bulletin,* September and November, 1958. Total money supply includes cash assets of mutual savings banks and demand deposits of foreign banks but excludes obsolete Treasury currency. Details may not add up to totals because of rounding.

The monetary status of checking deposits is greatly enhanced by the insurance of deposits by the Federal government. All but a handful of banks are members of the Federal Deposit Insurance Corporation (FDIC), which insures each account up to $10,000. In number, most deposits are fully insured, but only about half the dollar volume of deposits is covered, because of funds in large accounts.

Holders. Most of the money supply was, of course, held in the cash balances of business firms and individuals. The distribution of the money supply by class of holder is shown in Table 3-2.

These figures show that business firms held about half the total money supply but that they held it primarily in the form of checking deposits. Households held two-thirds of the coin and currency, less than one-third of the deposits.

Table 3-2
Distribution of Cash Holdings, June, 1958

(Billions of dollars)

Type of holder	Demand deposits	Coin and currency	Total	Per cent
Business firms and farms	$ 64	$ 7	$ 71	52
Households	30	19	49	36
Others	15	2	17	12
Total	$109	$28	$136	100

SOURCE: Estimated by author from data in *Federal Reserve Bulletin,* April, 1959, p. 378; October, 1957, p. 1194; May, 1957, p. 512. Details may not add up to totals because of rounding.

Table 3-3
Estimated Distribution of Demand Deposits by Size, January, 1959

(Per cent of class)

Size of account	Nonfarm business		Households	
	Number of accounts	Dollar value	Number of accounts	Dollar value
Under $1,000	48	1	68	19
$1,000–5,000	29	6	11	31
$5,000–25,000	17	17	2	27
Above $25,000	6	76	†	17
Unclassified*	. .	. .	18	5
Total	100	100	100	100

* Special checking accounts
† Less than 0.5 per cent
SOURCE: *Federal Reserve Bulletin,* April, 1959, p. 380.

Data on the distribution of deposits according to size indicate a substantial degree of concentration. Three-fourths of business deposits by value are held by the 6 per cent of firms with accounts larger than $25,000, and these large accounts represented 35 per cent of the total money supply.

COMMERCIAL BANKS AND THE MONEY SUPPLY

Introductory. Because checking deposits are the dominant element in our money supply, we shall begin our examination of the behavior of the money supply with the banks. The term "commercial bank" is applied to all banks which maintain checking deposits payable on demand for their patrons. In 1958 there were about 13,500 commercial banks in the United States. Of these, about 6,300 were members of the Federal Reserve System, but these member banks accounted for about 85 per cent of deposits. About 4,600 were national banks chartered by the Federal government, while the remaining 8,900 were chartered by individual states. For historical reasons, no individual bank operates branches outside its home state. However, banks carry on interstate business through "correspondent" relations with other banks and in some cases through holding companies which own several banks. The United States banking system differs greatly from those of most other countries, where a small number of large banks operate nationwide branch systems.

Bank Deposits. Commercial banks provide a useful service for the economy through the management of checking deposits, with their well-known advantages of safety and convenience. Deposit management puts the banks in the role of bookkeepers for the economy. Checks and bank statements serve business firms and individuals as valuable instruments in financial record keeping. Furnishing this service requires much bookkeeping by the banks themselves. Indeed, the management of checking deposits is essentially a process of bookkeeping operations by the banks.

To understand this, one must have a very clear understanding of what a bank deposit is. It is *not* a warehouse receipt showing that the bank has an equivalent amount of coin and currency in its vault ready for demands. Although the demand deposit is a promise to pay coin and currency on demand, it is a promise which banks make in the expectation that they will not be called on to fulfill it to any great extent at any one time. When this expectation has been disappointed, disastrous results have sometimes occurred.

The term "deposit" is unfortunate, for it implies a reference to "that which has been placed," whereas it is essential to distinguish between the deposit credit and the thing deposited. A deposit credit may come into existence through the depositing of coin and currency, but from then on credit and cash can go their separate ways. The original deposit credit may remain after the cash has been lent out, like "a grin without a cat."

The deposit itself is a claim against the bank by the depositor, a debt owed by bank to depositor. This claim is valuable to the depositor, not chiefly because it can be converted into cash, but because it can be transferred to others as a means of payment. Receiving and paying out coin and currency constitutes only a small part of bank business compared with the transfers by check.

In a sense, the deposit is a state of mind—an expectation by the depositor, a readiness by the banker. The extent of the banker's readiness to honor the checks or withdrawal slips of a depositor will be determined by entries written in the books of the bank. In an important sense, Joe Doakes's checking account consists of the entries under his name.

Since the deposit credit is fundamentally a bookkeeping entity, the changes which occur in any deposit account when funds are added to it or checks drawn against it take place through changing figures in the books of the banks. The commonest changes are those in which a sum is subtracted from one account and added to another. This is easy to visualize when it all takes place in one bank. Suppose, for instance, that a business firm in a small town pays its employees by check, and most of them deposit their checks in the same bank where the firm has its account. The bank will deduct the amount of each check from the firm's account and add it to the account of the employee who deposited it. At the end of the month, all the checks written by the firm will be recorded on a statement, along with deposit credits. The canceled checks and statement will be sent back to the firm and will provide an accurate record of expenditures, as well as a set of receipts for the individual wage and salary payments.

Clearing and Collection of Checks. Where several banks are involved, this process of adding and subtracting becomes somewhat more complex. Many check payments go to people who do not have accounts in the same banks on which the checks are drawn. What happens, for instance, when a check drawn on a New York bank is deposited in a bank in Chicago? Once deposited, the check becomes the property of the Chicago bank, which is entitled to collect the sum involved from the New York bank. One way of collecting would be to send a man to New York with a sack to cash the check and bring the proceeds home in currency. A century ago this was often the only means available for settling such accounts. Nowadays the problem is dealt with by means of a process of "clearing." The Federal Reserve operates a nationwide clearing system, but some big city banks also participate in local clearing houses. Each bank presents to the clearing house the checks it has accumulated against the others. Most of the claims against each bank are offset by claims it has against the others. Ultimately a balance is struck by the clearing house, and some banks will end up as net debtors and must pay the amount of their deficiency into a common pool. This money is then divided among the banks which had a net surplus. Since every check is a net credit for one bank and an equal claim against another, total claims must equal total credits, and the whole process comes out even.

A large part of check clearing goes directly through the Federal Reserve banks, and they are likely to be involved even where local clearing houses are used. Each member bank of the Federal Reserve System maintains a bank account with its regional Federal Reserve bank. These accounts are required as legal reserves. They serve as a medium through which the Federal Reserve can influence the operations of commercial banks. An understanding of the relation of these accounts to the clearing process is a necessary preliminary to a discussion of Federal Reserve techniques.

When a bank receives checks drawn on other banks, it can collect these by sending them to the Federal Reserve, which will add the amount of the checks to the reserve account of the commercial bank. The Federal Reserve will in turn deduct the amounts of the checks from the reserve accounts of the banks against which they are drawn. Then it will send the checks to the latter banks. The actions of the Federal Reserve resemble the actions of the commercial bank in our payroll example above.

Since checks will be moving in both directions, the net change in any bank's reserve account will be the difference between the checks credited to its account (those against other banks) and those charged against its account (deposited by other banks). When checks are cleared through a local clearing house, the debtor banks are likely to settle their debts by paying with checks drawn against their reserve accounts with the Federal Reserve. The result is the same as if the clearing had gone through the Federal Reserve. The debtor banks' reserve accounts are reduced, and the corresponding amounts are added to the accounts of the creditor banks.

CREATION OF DEPOSITS

Relation of Deposits to Loans. Managing existing checking deposits is an important economic function of banks, but it is not the most important of their activities, either from their own viewpoint or that of the economy as a whole. A commercial bank is a business firm operating for profit. While banks do make service charges for handling checking accounts, these do not yield any great profits. Banks obtain the bulk of their profits by making loans at interest or by buying and holding interest-bearing securities.

The great economic significance of bank lending stems from the fact that banks can *create* deposits in the process of making loans or buying securities. Most bank lending involves, of course, merely the relending of funds repaid by previous borrowers. But the total amount of bank loans increases year after year by means of the creation of additional deposits—thus, the creation of money. This is quite at variance with the popular notion that banks expand their loans by lending out funds received through deposits. For the banking system as a whole, it is commonly the loans which give rise to the deposits, rather than the reverse; still the process of deposit creation does look at times as if it merely involved lending out money received from depositors.

Since all checking deposits consist of entries in the books of the banks, one might say that *all* deposits are "created" by the bank when it makes the appropriate entries. Of course, entries are not made capriciously. A depositor's balance will be increased when he has brought in coin, currency, or checks. In such cases a sum of deposit credit has been "created," but the aggregate money supply remains unchanged, since there is an equivalent decrease in either the coin and currency outside the bank or in some other deposit account.

The bank can also increase the amount of a depositor's account when it makes a loan to him or buys securities from him. In order to lend Joe Doakes $1,000, a bank needs only to credit his account with $1,000 in its books by a stroke of the pen. The bank will still receive something of value in exchange for the deposit credit—the customer's IOU, or an interest-bearing security. This kind of deposit creation increases the total money supply.

The process of creating deposits is obviously a simple and painless one for the banks. What is to stop them from expanding their deposits extensively in order to make more profits for themselves and to extend the blessings of credit to everyone?

A bank can be expected to exercise restraint in the interest of solvency and liquidity. If it is to survive and prosper, it must limit loans to cases where repayment with adequate interest is fairly certain. Furthermore, the bank is required to pay the claims of depositors on demand. They may wish to convert demand deposits into coin and currency or, more likely, to write checks which will be deposited in other banks and returned through the clearing process for payment. A banker will be wary of increasing his deposit liabilities if he is unsure of having enough coin and currency or reserve deposits to pay such claims.

At present such individual limitations are eclipsed by the fact that banks are subject to legal "reserve requirements" imposed by Federal and state governments. These requirements limit the amount of deposits to a certain multiple of reserves by requiring a certain amount of reserves for each dollar of deposits.

The Balance Sheet. To understand the relation of bank reserves to loans and deposits, we must analyze the balance sheet of the banks. A balance sheet is simply a listing of all the assets and liabilities of a business firm or individual. Under the heading of "assets" are listed all the things of value owned by the firm, whether real property such as machinery and buildings or financial assets such as cash, government bonds, or debts owed to the firm. Under "liabilities" are listed all the debts owed *by* the firm being analyzed. For a solvent firm, the total value of the assets will exceed the total value of liabilities. The difference between them is called the "net worth" of the firm and represents the claim of the owners—the stockholders, for a corporation. Since net worth equals assets minus liabilities, we can also say that assets equal liabilities plus net worth, and this is how the balance sheet is ordinarily arranged. The net worth item is conventionally subdivided into "capital" and "surplus." The capital item represents the amount which the stockholders originally paid in; the surplus entry represents an increase in the value of the firm through reinvestment of profits. The student should be careful of this use of the term "capital." In this sense, it represents a claim against the bank, not an asset. The assets and liabilities of the commercial banks of the United States as of June, 1958, are shown in Table 3-4.

Table 3-4
Assets and Liabilities of United States Commercial Banks, June 23, 1958

(Billions of dollars)

Assets		*Liabilities and Capital*	
Cash in vault	$ 3	Demand deposits	$109
Reserves with Federal Reserve	19	Time deposits	64
United States securities	64	Treasury deposits	10
Other securities	20	Other liabilities*	4
Loans, net	95	Capital and surplus	18
Other assets	4		
Total	$205	Total	$205

* Includes $0.1 billion debt to Federal Reserve

Note: Accounts have been consolidated by eliminating debts of banks to each other. However, demand and time deposits include sums due to foreign and savings banks.

SOURCE: *Federal Reserve Bulletin,* November, 1958.

Most of the assets of the banks consist of loans and securities. Cash and reserves make up only about 10 per cent of total assets. Banks try to keep as much of their assets in earning form as they safely can. Most of the bank assets are offset by deposit liabilities. One might say the deposits are "backed" by the claims which the banks hold against borrowers. The ability of banks to meet depositors' claims depends on the ability of borrowers to repay their debts.

The balance sheet is very useful in analyzing the creation of deposits by the banks. Since the totals on each side of the account must be equal, a change in any single item must be accompanied by changes in other items of such a size that the totals remain equal. Furthermore, the balance sheet facilitates comparison of reserves with deposit liabilities.

Bank Reserves and Credit Expansion. Most commercial bank reserves are held in the form of deposits with the Federal Reserve. All member banks are subject to compulsory reserve requirements, and until 1959, these could be fulfilled only with deposits at the Federal Reserve. In 1959 Congress authorized counting vault cash as legal reserve, a provision to go into effect at Federal Reserve discretion. Nonmember banks are subject to reserve requirements of individual states. They hold their reserves chiefly in cash or in deposits with other commercial banks. However, some keep deposits with the Federal Reserve in order to use its clearing facilities.

Reserve requirements for member banks are higher for city than for country banks, and higher for demand deposits than for time deposits. Further, the Federal Reserve has authority to change requirements within specified limits. Under the average requirements in force in 1959, member banks were required to hold about $150 reserve for each $1,000 of demand deposits, and $50 for each $1,000 of time deposits.

Originally, legal reserve requirements were imposed to protect the liquidity of the banks—their ability to pay depositors on demand—but the requirements have come to serve primarily as a means of controlling the supply of money and credit. Bank liquidity is safeguarded now by the ability of the Federal Reserve to create bank reserves and currency when needed.

A bank can treat its reserve deposit much as an individual can treat his demand deposit in a commercial bank. A bank's reserve deposit can be increased if the bank deposits coin and currency or checks drawn on other banks. The commercial bank can withdraw coin and currency from its account or write checks on it. However, the bank's reserve account can also be increased if the Federal Reserve makes a loan to the bank or buys securities from it. Since the reserve deposit consists essentially of entries in the books of the Federal Reserve, changes in reserves merely involve bookkeeping changes.

Let us examine a numerical example illustrating the calculation of required and excess reserves. Suppose the Mudville National Bank has the following balance sheet:

Assets		*Liabilities and Capital*	
Reserves	$11,000	Demand deposits	$25,000
Loans and securities	39,000	Time deposits	20,000
		Net worth	5,000
Total	$50,000	Total	$50,000

If we assume that reserve requirements are 20 per cent for demand and 5 per cent for time deposits, we can ascertain the amount of reserves this bank must hold, as follows:

$25,000 demand deposits @ 20%	$ 5,000
$20,000 time deposits @ 5%	1,000
Total required reserve	$ 6,000
Actual reserves	$11,000
Less required reserves	6,000
Excess reserves	$ 5,000

The Mudville bank has more reserves than it needs. Its total reserve requirement is only $6,000, leaving it with $5,000 of excess reserves. The Mudville bank can therefore legally increase its deposit liabilities by making more loans or buying more securities. Furthermore, it will normally want to do so, in order to increase its profits. But how much can it expand? What limitations will it encounter?

Suppose it decides to make a loan of $5,000 to a local merchant, and does so by adding $5,000 to his checking account. This raises total checking deposits to $30,000. To balance this, there must be an equal increase in the bank's assets, which occurs through the increase in loan assets. The balance sheet now looks like this:

Reserves	$11,000	Demand deposits	$30,000
Loans and securities	44,000	Time deposits	20,000
		Net worth	5,000
Total	$55,000	Total	$55,000

The bank has created demand deposits and thus increased the supply of money. What does this increase in deposits do to the reserve position of the bank? Since it has increased its deposit liabilities by $5,000, its required reserve increases by 20 per cent of this, or $1,000. This brings its total required reserve to $7,000, leaving $4,000 of excess reserves. So far, therefore, it appears that the bank is not in danger of running out of reserves, and it might feel free to expand loans still further.

Presumably, however, the borrower wanted the $5,000 to spend, not merely to hold. When he spends the money, one of three possibilities may occur: (1) he might make a payment to another depositor of the same bank, (2) he might make a payment to a depositor of another bank, or (3) he might withdraw coin and currency. The effect on the Mudville bank will depend on which of these occurs.

1. If the money is paid to other depositors of the same bank, its total deposit liabilities are not affected. The amount subtracted from the borrower's account is added to others, and the bank's balance sheet remains unchanged. It still has $4,000 excess reserves and can expand its loans further.

How much further could the Mudville bank expand if it could be sure that all the newly created deposits would stay with it? It would be limited only by the reserve requirement. Of the total reserves of $11,000, the bank needs $1,000 as reserve for time deposits, leaving $10,000 to support demand deposits. On this base it could support $50,000 of demand deposits. It has excess reserves of $4,000, on which it could support $20,000 of additional deposits. Accordingly, under the assumption that deposits remain in the bank, it could expand its demand deposits and loans by a multiple of its excess reserves, the multiple depending on the percentage reserve requirement. However, the assumption is not very realistic.

2. It is more likely that the borrower will write checks which will be deposited in other banks. Suppose the merchant who borrowed $5,000 wrote a check for that amount which was deposited in a Chicago bank. That bank would send the check through the Federal Reserve for collection. The Federal Reserve would add $5,000 to the reserve account of the Chicago bank and deduct that amount from the reserve deposit of the Mudville bank. The check would then be returned to the Mudville bank, which would deduct $5,000 from the borrower's account and return the canceled check to him.

Consequently, the Mudville bank's reserves are reduced by $5,000 (leaving $6,000), while demand deposits are also reduced by $5,000 (leaving $25,000). We know from our original calculations that $6,000 is just enough reserve to support the remaining deposits—thus the Mudville bank is just in equilibrium. It expanded its loans and deposits by the amount of its excess reserves ($5,000) and lost both the new deposits and the excess reserves as a result. Hence the loss of new deposits to other banks drastically reduces the expansion potential of a given amount of excess reserves.

3. It is also possible that the borrower may take the proceeds of the loan in coin and currency. If this flows back into the Mudville bank again, the effects are the same as in case 1. If the coin and currency remain outside the bank, the result is about the same as in case 2. The reason is that the Mudville bank is likely to meet a demand for coin

and currency by obtaining more from the Federal Reserve, which entails reducing its reserve balance. Therefore the draining of $5,000 into circulation reduces reserves to $6,000, which is just the amount the bank requires.

Summary—Limits to Credit Expansion by One Bank. When our bank expected its newly created deposits to remain with it, its expansion was limited only by the legal reserve requirement. It could use up its excess reserves by greatly increasing its demand deposits (through loan expansion), until all the existing reserve was needed for them. The amount of reserves was not depleted in the process. In the more realistic examples, on the other hand, expansion of loans and deposits would lead to depletion of total reserves, because of checks going to other banks and coin and currency withdrawn.

Banks often require that borrowers keep a certain proportion of their loan proceeds on deposit with the lending bank. For this reason, probably not all the deposits created by lending will be lost. Yet it is still roughly correct to assume that most will be and that the individual bank can safely expand its loans by the amount of its excess reserves. This seems to be the rule most banks follow. Of course, such loan expansion is always conditioned on whether a favorable attitude is shown by the banks toward the risks entailed in lending.

EXCESS RESERVES AND CREDIT EXPANSION BY THE BANKING SYSTEM

How Reserves Move Around. For the individual bank, the most significant limitation on its ability to expand is usually the loss of reserves to other banks through check clearing. For the banking system as a whole, however, this is not a limitation. One bank's loss of reserves is another's gain. Transfer of reserves from bank to bank may slow down the expansion process and spread it over a wide area, but if all banks have the same reserve requirements, the shifting does not reduce the over-all potential for expansion. Only the drain of coin and currency and the legal reserve requirements remain as external limitations on expansion. Thus the banking system as a whole can expand more on a given amount of excess reserves than can one bank. To illustrate how this can occur, let us pick up the narrative back at case 2. The Mudville bank, with $5,000 of excess reserves, expanded its loans and demand deposits by $5,000. The newly created deposits were then checked out and came to roost, let us say, in a Chicago bank. That bank would credit the deposit of the person bringing the check in and then send the check to the Federal Reserve for collection. As we noted, the Mudville bank emerges from the transaction shorn of its newly created deposits and its excess reserves. The Chicago bank, however, has gained the deposits and has the $5,000 of reserves credited to its account by the Federal Reserve. Its balance sheet is altered as follows:

Reserves	+$5,000	Demand deposits	+$5,000

The increase in demand deposit liabilities increases the required reserve which the Chicago bank must hold by $1,000. In addition, since its actual reserves have increased by $5,000, excess reserves are increased by $4,000. This provides it with the basis for expanding loans by the same amount. If it makes the additional loans, its balance sheet will be further altered thus:

Reserves	+$5,000 (as above)	Demand deposits	+$5,000 (as above)
Loans	+ 4,000 (new)		+ 4,000 (new)

Let us assume again that the borrower writes a check with the proceeds of his loan which is deposited in another bank, say, in Denver. The Denver bank will credit the depositor's account with $4,000 and send the check to the Federal Reserve for collection. The Federal Reserve will add $4,000 to the Denver bank's reserve account and subtract the same amount from the reserve account of the Chicago bank. Then the check is returned to the Chicago bank, which deducts the $4,000 from the borrower's account and returns the canceled check to him. When the process is completed, the balance sheets of the two banks will show the following changes:

Chicago bank

Reserves	+$1,000 ($5,000 – $4,000)	Demand deposits	+$5,000 (original)
Loans	+ 4,000		

Denver bank

Reserves	+$4,000	Demand deposits	+$4,000

The Chicago bank now retains just enough reserves to meet the requirement for $5,000 of deposits. So far as this series of transactions is concerned, it has no excess reserves (in other words, no more than it had to start with) and therefore cannot expand loans further.

The Denver bank finds itself with deposits and reserves increased equally by $4,000. Since its required reserve increases by only $800, the Denver bank acquires $3,200 of excess reserves and can expand its loans by that amount. If it does so and the proceeds are again checked out to another bank, say in Los Angeles, its final balance sheet will look for this:

Denver bank

Reserves	+$ 800 ($4,000 – $3,200)	Demand deposits	+$4,000
Loans	+ 3,200		

The Los Angeles bank would in turn receive $3,200 of additional deposits and reserves, which would give it excess reserves and lending power of $2,560. And so on, ad infinitum.

The student can now recognize that we have been describing a sequence of events which has the mathematical characteristics of an infinite geometric progression in which the successive increments grow ever smaller. Such a series approaches a finite limit. If we summarize the way it operates, this will be apparent. This is done in Table 3-5.

Table 3-5
Credit Expansion by the Banking System

Bank	Final increase in deposits		Final increase in reserves	
	One bank	Cumulative	One bank	Cumulative
Chicago	$ 5,000	$ 5,000	$1,000	$1,000
Denver	4,000	9,000	800	1,800
Los Angeles	3,200	12,200	640	2,440
Subsequent bank	2,560	14,760	512	2,952
Subsequent bank	2,048	16,808	410	3,362
Next five banks	5,500	22,307	1,100	4,461
Next five banks	1,805	24,112	361	4,822
Next five banks	603	24,715	121	4,943
Other banks	285	25,000	57	5,000
Totals	$25,000		$5,000	

Note: Dropping fractions produces slight rounding discrepancies.

The cumulative totals show clearly how the expansion of deposits starts out rapidly and then tapers off and approaches the limit. Although technically the limit is never reached, for all practical purposes the sequence is complete by the time twenty banks have been involved. The formula for the sum of a series of this type is $S = a/(1 - x)$, where a is the first term ($5,000) and x is the ratio of any term in the series to the one preceding—in this example, $\frac{4}{5}$. Thus the sum of the first column is $5,000 $\div \frac{1}{5}$, or $25,000.

For each bank the final increase in deposits is just five times the final increase in reserves. This is just sufficient to use up all the excess reserves and leave each bank in equilibrium, and the sum of the increases in reserves ultimately equals the amount of reserves which the Mudville bank lost to start the expansion process. Thus the successive expansions of the various banks have had the effect of dealing out the original excess reserves until they have all become the backing for deposits. When all the excess reserves have been used up in this way, the expansion halts. Finally, the ultimate increase in demand deposits made by the banking system as a whole is just equal to the increase which could have been made by the Mudville bank if all its deposits remained with it instead of being checked out. This shows how the loss of reserves through the clearing process checks the expansion of one bank, but not the expansion of the banking system as a whole.

Expansion Coefficients. From the foregoing example one can derive a formula to measure the expansion potential of the banking system for a given amount of reserves. Letting A stand for the amount of excess reserves and R for the fractional reserve requirement, the total of additional demand deposits D which the system can support is given by

$$D = \frac{A}{R}$$

This could be applied to the foregoing example by substitution, so that $D = \$5{,}000/0.20 = \$25{,}000$. While the formula can be applied to total reserves, it is much simpler to use it to show the additional deposits which can be supported by excess reserves. This eliminates the need to allow for existing time deposits.

The formula shows the permissible expansion of deposits provided the amount of reserves remains unchanged. In practice, an expansion of bank loans and demand deposits is likely to induce certain other changes which will affect the expansion. First, there will probably be some withdrawal of coin and currency into circulation, which would reduce the amount of reserves. Second, some of the funds created in the form of demand deposits will probably be converted into time deposits by subsequent recipients.

If the relative amounts of coin and currency, demand deposits, and time deposits which the public wishes to hold are stable, we can adjust our formula to allow for them. Let us suppose that the banks have $10,000 of excess reserves and that reserve requirements are 15 per cent for demand deposits and 5 per cent for time deposits. Suppose further that the public desires to hold its assets in the following ratio: $5 demand deposits: $3 time deposits: $1 coin and currency. In order for demand deposits to increase permanently by $1,000, the banks will need $150 of reserves for the demand deposits. In addition, they must be prepared to lose $200 of reserves through withdrawal of coin and currency. Finally, since the public will want to hold $600 of time deposits, banks will need $30 of reserves to support them.

If we add together all these claims against reserves (expressed in decimal fractions), we get a total which we can use for R in the formula for D given previously.

$$R = 0.15 + 0.20 + 0.03 = 0.38$$

$$D = \frac{A}{R} = \frac{\$10{,}000}{0.38} = \$26{,}316$$

The potential expansion of demand deposits is thus $26,316. From this we can compute the other changes, as follows:

Coin and currency withdrawn = $26,316 × ⅕ = $ 5,263
Time deposits = $26,316 × ⅗ = $15,790

If our figures are correct, the additional claims against reserves should just exhaust the excess reserves we started with. This can be tested as follows:

Original excess reserve	$10,000
Less coin and currency withdrawn	5,263
Reserves remaining in banks	$ 4,737

Demand-deposit requirement = $26,316 × 0.15 = $3,947
Time-deposit requirement = $15,790 × 0.05 = 790
Total requirement $4,737

The increase in the money supply resulting from this operation is the combination of new demand deposits and coin and currency withdrawn from the banks.

Increase in money supply = $26,316 + $5,263 = $31,579

The increase in loans is even greater. Loans expand by the sum of all deposits created, whether demand or time, and by the amount of coin and currency withdrawn. This can be illustrated in balance-sheet form as follows:

Reserves	−$ 5,263	Demand deposits	+$26,316
Loans and securities	+ 47,369	Time deposits	+ 15,790
Total	+$42,106	Total	+$42,106

The indicated increase in loans and securities is needed to make the balance sheet balance.

Instead of expressing these increases in dollars, we could put them in the form of numerical coefficients, each of which could be multiplied by the amount of excess reserves to find the dollar expansion potential of deposits, loans, or money. These would be as follows:

Demand deposits = $26,316/$10,000 = 2.63
Money supply = $31,579/$10,000 = 3.16
Bank loans = $47,369/$10,000 = 4.74

The size of these coefficients would depend on the structure of reserve requirements and on the relative proportions in which the public would like to hold currency and demand and time deposits. A change in either of these two factors would alter all the coefficients. As an illustration, try to figure out what would happen to the coefficients if the public desired to hold $1 of currency for every $4 of demand deposits or if the reserve requirement on time deposits were 10 per cent.

What are the actual coefficients of the monetary system? On June, 1958, the banking system as a whole (including nonmember commercial and savings banks) held deposits with the Federal Reserve plus cash in vault equal to about 17 per cent of demand deposits and 3.3 per cent of time deposits. For every dollar of demand deposits, the public held about 90 cents of time deposits and 26 cents of currency. If we assume that additional money would be distributed in the same proportion and allotted among different classes of banks in the same manner, we get the following results:

$$R = 0.17 + 0.26 + 0.03 = 0.46$$

Demand-deposit coefficient $= 1/0.46 = 2.17$
Money-supply coefficient $= 2.17 + (2.17 \times 0.26) = 2.74$
Loan coefficient $= 2.74 + (2.17 \times 0.9) = 4.69$

Thus the monetary system could be expected to increase the money supply by about $2.75 for every dollar of excess reserves.

In summary, we can say that the expansion potentials of the banks will be greater the more excess reserves they have, the smaller the reserve requirements, and the smaller the amount of coin and currency which the public will want to hold as deposits increase. If the desired ratio of time deposits to demand deposits increases, this will raise the potential for loan expansion but reduce the potential for increasing the money supply on the basis of a given amount of excess reserves.

For most of the analysis in this section, we shall ignore the complications entailed in treating changes in coin, currency, and time deposits as variables dependent on demand deposits; but their interdependence cannot be ignored in any realistic discussion of banking policy.

Credit Contraction. So far our discussion has dealt with credit expansion made possible by excess reserves. Much of the same analysis applies to credit contraction when reserves are deficient, but the situations are not wholly analogous. In particular, while the banks *may* expand credit when they have excess reserves, they *must* act when reserves are deficient, either to obtain more reserves or to reduce their deposit liabilities. Member banks of the Federal Reserve System are permitted to meet reserve requirements on the basis of figures averaged over a week or two rather than every single day. This length of time still requires fairly rapid action by the banks.

As an illustration, suppose the Mudville bank is just in equilibrium, with reserves just sufficient for existing deposits, when it is subjected to an unexpected withdrawal of funds—say, $1,000—perhaps due to a monetary panic, the failure of a local business, or something of the sort. Demand deposits and reserves are both reduced by $1,000. This change reduces required reserves by $200, but the remaining $800 of reserve loss creates a deficiency (assuming a 20 per cent reserve requirement).

There are a number of ways in which the Mudville bank can attempt to remedy the deficiency. If it has loans maturing—and most banks do try to keep the maturities staggered—the bank can insist on repayment and refuse to relend the money. Suppose $1,000 worth of loans is falling due—surely that will be enough to meet the deficiency. However, it makes a lot of difference how the loans are repaid. For instance, local borrowers might repay their loans by writing checks on their deposits with the Mudville bank. The bank's demand-deposit liabilities would thereby be reduced by $1,000 as the checks were subtracted from the accounts of the former borrowers. Loan assets are also reduced by $1,000 and the bank obtains no additional reserves in the process. Its reserve position improves by $200, since getting rid of $1,000 of deposits reduces the required reserve by that amount. At that rate, however, the bank has to collect a total of $3,000 more from former borrowers before its demand deposits are reduced to the point where remaining reserves will suffice.

The Mudville bank will have a much easier time of it if it can succeed in having its loans repaid in coin and currency or checks on other banks. Perhaps it may attempt to achieve this result by selling securities to other banks or to their depositors. Every dollar obtained in this manner will increase the Mudville bank's reserves, so that it will need only $800 acquired in this way to meet its initial reserve deficiency.

However, a large inflow of coin and currency in loan repayments is not very likely; and if the Mudville bank begins collecting loans which are paid with checks on other banks, the contractionary pressure spreads throughout the banking system. Suppose that in collecting $1,000 of loans the Mudville bank receives checks on a Chicago bank. It will send these to the Federal Reserve for collection, and $1,000 will be transferred from the Chicago bank's account to that of the Mudville bank. This eliminates the reserve deficiency in Mudville but may create one in Chicago. The Chicago bank's excess reserves are reduced by $800, and it may feel obliged to contract its credit also.

If the banks have no excess reserves to start with and if each one attempts to remedy its deficiency of reserves by reducing loans and selling securities, it may take as much as a $4,000 curtailment of loans and demand deposits to meet a reserve deficiency which was initially only $800. The situation is now similar to the case where the Mudville bank received payment in its own checks. For the banking system as a whole, no increase in reserves takes place. Therefore demand deposits must be reduced by five times the deficiency. Since some banks will have excess reserves to start with, this may provide a cushion. Also there may be some flow of coin and currency into the banks, providing additional reserves. However, there have been periods of panic when just the opposite occurred—coin and currency were withdrawn out of distrust for the banks just when they were under pressure to contract anyway.

Credit contraction on a wide scale can be an unpleasant affair, contributing to depression and unemployment. It was chiefly to avoid such possibilities that the Federal Reserve System was formed, and at present the facilities of the Federal Reserve provide means whereby banks can meet reserve deficiencies without disrupting the economy. The Federal Reserve banks can create additional reserves for banks (by bookkeeping actions) by making loans to them or buying securities from them or their depositors, or they can relieve pressure by reducing the percentage reserve requirements. By such means the banks can obtain needed cash and still meet reserve requirements. The ability of the Federal Reserve to create cash and bank reserves is a vital safeguard against runaway panics and excessive contraction of credit.

Reserves and Reserve Requirements. The amount of reserves which banks have is subject to constant variation because of a number of forces. An inflow of currency from the public will increase bank reserves; an outflow will deplete them. Bank reserves may also be affected by the operations of the Federal Reserve and the Treasury. If the Federal Reserve makes a loan to a bank, it will add the sum to the bank's reserve account. When the Federal Reserve buys government securities from banks or other investors, bank reserves usually increase. When gold is imported or mined and sold to the Treasury, bank reserves normally increase. We shall analyze these transactions in detail when we discuss the role of the Federal Reserve and the Treasury in our monetary system. Such transactions place the dollar volume of bank reserves very much under the control of the government and provide ways in which reserves can be manipulated to produce the desired effects on the economy. The percentage reserve requirements to which commercial banks are subject are also a means of influencing bank lending capacity.

Changing the percentage reserve requirement will obviously affect the expansion potential of the banks. We can illustrate this by returning to our original balance sheet for the Mudville bank.

Reserves	$11,000	Demand deposits	$25,000
Loans and securities	39,000	Time deposits	20,000
		Net worth	5,000
Total assets	$50,000	Total liabilities	$50,000

With reserve requirements of 20 per cent for demand deposits and 5 per cent for time deposits, the Mudville bank had a total required reserve of $6,000, leaving excess reserves of $5,000. For the banking system as a whole, these excess reserves could support up to $25,000 of additional demand deposits.

Suppose, however, that the Federal Reserve increased the reserve requirement for demand deposits to 25 per cent. Required reserves would thereby be increased by $1,250 ($25,000 × 0.05), so that excess reserves would fall to $3,750. Furthermore, the expansion potential would be reduced by the fact that each $1 of excess reserves can now support only $4 of demand deposits. Therefore the maximum expansion potential for the banking system as a whole would be only $15,000 instead of $25,000. Increasing the reserve requirement thus affects the banks in two ways: it reduces the amount of excess reserves they hold, and it reduces the expansion potential of each dollar of excess reserves remaining.

Reducing the reserve requirement would, of course, increase the excess reserves of the banks, and at the same time increase the expansion potential of each dollar of excess reserves. Figure out for yourself what would happen if the reserve requirement for demand deposits were reduced to 10 per cent with the above amounts of deposits and total reserves. However, the magnitude of these effects is much less impressive if we use expansion coefficients which allow for currency and time deposits.

BANK ASSETS

Bank Regulation and Supervision. Commercial banks are engaged in two functions which are basically separable. On the one hand, they create and manage a large portion of the money supply; on the other, they make loans and buy securities, as do a wide variety of institutions which cannot create money. Because of the vital public concern for the first function, the second has been subjected to extensive regulation and supervision. Three main objectives have been stressed:

1. *Liquidity.* A large portion of bank deposit liabilities are payable on demand. If bank deposits are to serve well as money, the banks must be able to meet these demands.

2. *Solvency.* The value of the banks' total assets must be safeguarded so that it does not fall below the level of liabilities; otherwise the depositors' claims cannot be met in full. The thin margin of stockholders' equity (capital and surplus) makes this urgent.

3. *Honesty and fairness.* The power to create money can create opportunities for dishonest personal gain or for unfair advantages to insiders. Such abuses must be curbed.

These objectives show up in the restrictions of bank assets. Banks are normally prohibited from buying variable-value assets such as corporate stocks or real estate, although such assets may serve as collateral for loans. There are limits on loans to any one borrower and to insiders. The banks generally confine the bulk of their lending to relatively short-term loans. And they try to minimize risks of default on loans and securities. These practices arise from law and custom but are also a product of bank supervision. Every bank is visited periodically by Federal or state bank examiners, who evaluate not merely the honesty but also the prudence of the bank's conduct.

Table 3-6

Commercial Bank Loans and Securities, June 23, 1958

(Billions of dollars)

Loans	
On real estate	$24
Commercial and industrial	39
Consumer credit	16
For carrying securities	6
Farm loans	5
Loans to banks	2
Other loans	7
Total	$97
Securities	
United States Securities:	
3-month bills	$ 5
Others maturing in 1 year	10
Longer maturities	49
Total	$64
State and local government	16
Other securities	4
Total	$84

Memorandum: Cash and reserves, $22.

SOURCE: *Federal Reserve Bulletin,* November, 1958.

Composition of Assets. Table 3-6 shows a more detailed account of commercial bank loans and securities in 1958.

Banks carry on a wider variety of lending operations than any other type of financial institution, as we shall see in Chapter 10. They also make a larger number of loans than any other.

Banks arrange the structure of their earning assets in an effort to balance considerations of safety, liquidity, and profitability. Besides their cash and reserves, they keep a certain amount of "secondary reserve" assets—very safe assets which can be converted into cash readily without risk of loss. The principal secondary reserve assets are short-term United States securities and "prime commercial paper"—short-term negotiable promissory notes issued by well-known business firms. A bank can obtain cash by selling these or allowing them to mature. Secondary reserve assets probably amounted to about $20 billion in June, 1958, if we include all United States securities maturing in one year. This total was just slightly under the total for cash and reserves.

A large part of remaining bank loans will also be repaid within a year. About two-thirds of loans to business are for one year or less, and consumer loans average about one year in duration. Mortgage loans are for longer terms, but most are repaid in installments, which yield an annual flow of repayments commonly exceeding 10 per cent of debt outstanding. All told, some 60 per cent of bank loans fall due within a year.

This leaves a margin for longer-term loans and investments. Banks have shown increasing willingness to make business loans of maturities up to 5 or even 10 years. The bulk of mortgage lending is long-term. Holdings of long-term securities, particularly those of state and local governments, are distinctly in the investment category. However, long-term loans, mortgages, and securities can be sold if the individual bank needs cash. Their liquidity depends on how stable their market prices are. Since 1953, fluctuations in prices of long-term assets have been substantial, and banks have been less likely to count even their long-term United States securities as liquid assets.

Table 3-6 also indicates that banks lend to each other. Such loans, as well as loans from the Federal Reserve, are an additional means of making short-term adjustments in liquidity and in reserve position.

We shall take up most aspects of the composition of bank assets in subsequent chapters. Here we must note an important relation between bank lending and the flow of money expenditure in the economy. Most bank loans are made directly to borrowers who are going to spend the money for goods and services. But when banks add to their holdings of United States securities, they often do so by purchasing them in the open market from other investors, who do not spend the money for goods and services. As a result, changes in the composition of bank assets tend to be associated with changes in velocity—the rate at which money circulates through the economy. Banks are likely to shift between making loans and buying government securities as business conditions change. During prosperous times, when loan demands and risks are favorable, they expand their loans and allow their security holdings to decline. Such a shift can be accomplished by letting short-term securities mature, although banks will not want to reduce their secondary reserves unduly in this manner. The eagerness of banks to sell long-term securities in order to expand loans may be affected by declines in security prices. Holdings of securities may become "locked in" because banks are reluctant to take capital losses. During a recession, the banks are likely to let their loans decline and buy safer securities instead. Such asset shifts do not affect the quantity of money but may have a decided influence on its rate of expenditure.

The banks may react to changes in reserves by changing the composition of their assets also. If banks receive additional reserves, their initial response is likely to be to reduce their debt to other banks or to the Federal Reserve. After that, remaining reserves are likely to be used to acquire additional secondary reserves. Then the banks will gradually expand their other loans and securities. Loans are the "bread and butter" of banks, and most bankers acknowledge a sense of community obligation to accommodate their borrowers. Nevertheless, loans expand slowly because it takes more time to process them and because the banks want to be sure the reserve increase is not just a transient phenomenon. This pattern means that there may be a delay before reserve increases cause an increase in active money.

Adjustment to contraction is likely to follow a parallel path. Initially, banks may adjust by borrowing from the Federal Reserve or from other banks. In a short time, the burden of adjustment will shift to secondary reserve assets, which may be sold or allowed to mature. In the long run, if necessary, other loans and securities will be reduced.

SUMMARY—COMMERCIAL BANKS AND THE MONEY SUPPLY

Commercial bank checking deposits are the largest element in our money supply. Banks can create deposits by bookkeeping entries when they make loans or buy securities. Individual banks are limited in their capacity to create deposits by the drain of funds into other banks or into circulating cash. The banking system as a whole is limited by legal reserve requirements, which allow banks collectively to create demand deposits equal to a multiple of their reserves. The ability of banks to expand loans and deposits is thus limited by the amount of their reserves and by legal reserve requirements, both of which can be influenced by the Federal Reserve. The amount by which credit may expand with a given amount of excess reserves also depends on the public's preference among the alternatives of demand deposits, time deposits, or currency.

QUESTIONS FOR STUDY

Assume that all banks are members of the Federal Reserve System and are subject to reserve requirements of 20 per cent for demand deposits and 5 per cent for time deposits.

1. The following items might appear in a consolidated balance sheet for all commercial banks. Arrange them in proper balance-sheet form. Determine the size of the capital and surplus item. (Assume there are no items other than those listed.)

Cash in vault	$ 1,500	(millions)
Demand deposits	20,000	
Loans	9,000	
Securities	10,000	
Capital and surplus	?	
Time deposits	5,000	
Reserves	5,500	

Compute the amount of required reserves, excess reserves, and the amount by which the banks could expand their loans on the basis of existing reserves. Define each item in the account.

2. Compute the direct effects of each of the following on the dollar volume of bank reserves, the public's money supply, and the unused lending power of the banking system as a whole. Assume that all payments are made by check unless otherwise specified. Ignore borrowing by banks, and assume no effects on time deposits and currency unless specified.
   - *a.* Banks lend $1 billion to business firms.
   - *b.* Individuals repay $2 billion of bank loans.
   - *c.* Individuals invest $1 million in the capital of a new bank.
   - *d.* Individuals withdraw $2 billion coin and currency from
     - (1) Demand deposits
     - (2) Time deposits
   - *e.* Individuals shift $1 billion from demand to time deposits.

3. Using the figures in problem 1, compute the effect on excess reserves and lending power if the reserve requirement for demand deposits were increased to 25 per cent; if the requirement for time deposits were reduced to 4 per cent.

4. Analyze the following statements:
   - *a.* "Banks do not create money; they merely lend out money which is deposited with them."
   - *b.* "Banks can always meet demands for cash by calling in loans of an equal amount, which will replenish their reserves."

c. "But the banks will not have to call loans, because they can always use their deposits and capital to meet the demands of depositors."

d. "It is unfair to require banks to keep reserves in a form which earns no interest. They should be allowed to count government securities as reserves, since they can always be turned into cash."

5. A bank robber is undecided which of two banks in a given town he should rob. Both are equally vulnerable to robbery, and he wants to pick the one with the most cash on hand. The window of one bank says "Deposits: $3,000,000." The other says "Capital and surplus: $500,000." Assuming each bank is typical, which will probably have more cash on hand?

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CHAPTER 4

THE FEDERAL RESERVE BANKS AND THE TREASURY

THE FEDERAL RESERVE BANKS

Nature and Structure. The Federal Reserve System, which has been in operation since 1914, is the principal means through which the Federal government regulates the supply of money and credit. There are twelve regional Federal Reserve banks which carry on actual operations, but the Board of Governors in Washington is the major policy-making influence. Direct Federal Reserve jurisdiction extends only to such banks as choose to join the System (but a bank must join if it wishes to be a national bank); however, measured by money volume, most of the banking facilities of the country have come within the System. Although more than half the commercial banks by number remain outside, they hold only about 15 per cent of the country's demand deposits.

The Federal Reserve banks issue most of our paper currency. They hold the reserve deposits of member banks and can influence their amount—passively, in the process of clearing checks; actively, by making loans or dealing in government securities. The Board controls the legal reserve requirement of banks within statutory limits. To examine the monetary implications of these operations in more detail, it is convenient to start with the balance sheet of the Federal Reserve banks, shown in Table 4-1.

The general structure of this balance sheet is similar to that of the commercial banks, but there are some unfamiliar items. Among the assets we find the familiar items of cash in vault, loans, and securities. Gold certificates, a form of quasi currency issued by the Treasury, serve as the legal reserves of the Federal Reserve. Each dollar of gold certificates is backed by a dollar of gold. The certificates are convertible into gold on demand but no longer circulate as money. The law requires the Federal Reserve to hold gold certificates equal to 25 per cent of its note and deposit liabilities, but its reserve position has not exerted any influence on its policies for many years. At present, gold certificate holdings are far greater than the amount needed as reserves. Note that gold certificates and United States government securities together account for nine-tenths of Reserve bank assets.

Table 4-1

Balance Sheet of Federal Reserve Banks, June 25, 1958

(Billions of dollars)

Assets		*Liabilities*	
Gold certificates	$20.8	Federal Reserve notes	$26.2
Cash in vault	0.4	Member bank reserve deposits	18.6
Federal Reserve credit:		Treasury deposits	0.5
United States securities	25.0	Other liabilities	0.7
Discounts and advances	0.1		
Float	0.8		
Other assets	0.3	Capital and surplus	1.4
Total	$47.4	Total	$47.4

SOURCE: *Federal Reserve Bulletin*, July, 1958. Uncollected items other than float have been deducted from both sides.

The Federal Reserve holds a substantial volume of checks of commercial banks which are in the process of clearing. Some of these represent funds which have already been credited to the bank which deposited them but have not yet been charged to the bank against which they were drawn. These funds, which constitute a temporary loan to banks, are called "float."

Among the liabilities must be listed the Federal Reserve notes in circulation. As we have observed, these form the principal component of the country's supply of paper currency. The Federal Reserve also has deposit liabilities, consisting chiefly of the reserve accounts of the member banks, plus small balances for the Treasury, other government accounts, and foreign accounts. The Federal Reserve does not do a general banking business; it does not furnish ordinary demand deposits to business firms and individuals. It is a "bankers' bank."

Each member bank is required to purchase stock in the Federal Reserve. The Reserve capital account represents money thus paid in by member banks, plus reinvested earnings. Member banks receive a regular dividend of 6 per cent on their stock, but surplus Reserve bank earnings not needed for reinvestment are paid into the Treasury.

Federal Reserve "Chores." A large part of the activity of Federal Reserve employees consists of performing a number of highly useful service functions. These include the following:

1. Clearing and collection of checks
2. Telegraphic transfers of funds
3. Managing Treasury funds and transactions
4. Supplying banks with coin and currency and withdrawing worn-out pieces from circulation
5. Supervising member banks and conducting periodic on-the-spot examination of state member banks

(National banks are examined by the Comptroller of the Currency.)

The money volume of the transactions involved in these activities is staggering. In 1958, the Federal Reserve handled currency equal to the total amount in circulation, Treasury checks exceeding $100 billion, and United States securities worth more than $500 billion. The value of checks cleared totaled about $1 trillion, and telegraphic transfers reached a grand total of $1.6 trillion![1] But these functions are not the most important, interesting, or controversial of Federal Reserve activities.

FEDERAL RESERVE CONTROL OF CREDIT

Reserve Requirements. The Board of Governors has authority to fix member bank reserve requirements within certain limits. The limits differ with the location of the bank and the type of deposits. Limits in effect until 1959 were as follows:

Location	Demand deposits, per cent		Time deposits, per cent	
	Minimum	Maximum	Minimum	Maximum
Central reserve city (New York and Chicago)	13	26	3	6
Reserve city	10	20	3	6
Other ("country")	7	14	3	6

However, in 1959 Congress voted to authorize the Reserve Board to merge the first two bank categories and to set requirements for the new combined category between 10 and 22 per cent for demand deposits. As of 1959, about 270 banks in 49 cities had been designated as reserve city banks by the Board.

Changing the reserve requirements does not alter the money supply directly but changes the ability of the banks to lend. Reducing the reserve requirement increases bank lending ability. If the banks are willing to make more loans or buy more securities, they can expand the money supply; the final choice is theirs. Raising reserve requirements can coerce the banks into contracting or prevent them from expanding —provided the Federal Reserve uses its other techniques to prevent the banks from obtaining more reserves.

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[1] Board of Governors, Federal Reserve System, *Annual Report,* Washington, 1958, p. 113.

Loans to Member Banks—"Rediscounting." Member banks may borrow from the Federal Reserve banks to obtain reserves or currency. Originally it was expected that banks would obtain funds from the Federal Reserve by selling to it some of the IOUs of their customers—by "rediscounting." A bank might lend to a customer by "discounting" his promissory note, that is, buying it at a discount from face value. The discount would represent the interest deducted in advance.[2] The commercial bank might resell the note to a Federal Reserve bank at a price below its maturity value. This time the discount would represent interest charged by the Federal Reserve—the rediscount rate. Suppose a bank gave a customer $990 for a 60-day $1,000 promissory note at 6 per cent interest. If the Federal Reserve rediscount rate were 3 per cent, the bank could resell the note to the Reserve bank for $995. The higher the rediscount rate, the less the bank would receive for a given note.

In recent years, rediscounting of the traditional sort has virtually ceased. Banks rely instead on direct loans from the Federal Reserve on collateral of government securities. The volume of customers' IOUs which are "eligible" for traditional rediscounting is small, and the direct loan is more convenient. The rediscount rate measures the interest charged on such loans.

Initiative in borrowing comes from the member banks, who borrow mainly to meet deficiencies in reserves. Bankers dislike being in debt to the Federal Reserve, and Reserve officials have encouraged this attitude by stressing that borrowing is a privilege to be used chiefly as a temporary assistance. Ordinarily a bank which borrows is urged by Reserve officials to liquidate other assets to repay its debt, which normally will not extend over more than two weeks. During a period when Reserve policy is to restrain credit, additional pressure may be exerted on borrowing banks by raising the rediscount rate they must pay. Banks faced with a reserve deficiency choose between borrowing and reducing their holdings of short-term securities. Raising the rediscount rate induces them to choose the latter.

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[2] Discounting originated when many bank loans were based on commercial bills of exchange, which were the IOUs of buyers of goods, often made up for odd sums reflecting the value of a shipment. Since the seller usually used the note as the basis for a loan, discounting was a way of charging the interest to him.

The volume of Federal Reserve discounts averaged about a half billion dollars in the latter half of the 1950s but fluctuated substantially with seasonal and cyclical factors. Discount volume was generally low during recessions and high during booms, even though the latter might be periods of Federal Reserve credit restraint. At first glance, borrowing from the Reserve banks might seem to represent an evasion technique for the banks, but Reserve officials do not so regard it. They feel that the debtor banks will be struggling to curtail their loans and securities in order to get out of debt.

The rediscount rate may influence commercial bank interest charges also. These charges are determined through a form of "price leadership" in which changes are often initiated by the giant metropolitan banks. These banks sometimes use rediscount rate increases as justification for their own increases, but such a change is an influence on timing more than anything else. Basic changes in bank charges follow the general relationship of the supply of and demand for credit.

The Federal Reserve makes the proceeds of a loan available by crediting the reserve account of the borrowing bank. Since the loan does not affect commercial bank deposit liabilities, the entire proceeds go to increase excess reserves, or more likely to reduce an existing deficiency. With a 20 per cent reserve requirement, a loan of $1,000 provides enough reserves to avoid the need for a contraction of up to $5,000 in loans and deposits. When the commercial bank repays the loan, the sum will be deducted from its reserve account.

Open-market Operations. Probably the most important type of action which the Federal Reserve can take to influence the monetary and credit situation consists of so-called open-market operations. In these the Federal Reserve, dealing through private securities dealers rather than directly with the Treasury, buys or sells marketable securities of the United States government. We shall describe these securities and their role in the financial world later. Here we merely note that they are issued for a specified term, rather than being redeemable on demand, and can be bought and sold, like stocks, at prices which fluctuate with supply and demand and may differ from the issue price or maturity value of the securities. The Federal Reserve holds more than $20 billion of these securities, and its transactions can have a major influence on their market and on commercial banks and the money supply as well.

The effects of a Federal Reserve open-market transaction depend somewhat on whether the other party involved is a bank or some other investor. If the Federal Reserve buys securities from commercial banks, the transaction is similar to a loan to the banks. The Federal Reserve pays for the securities by adding the amount to the reserve deposit of the commercial banks. Securities holdings of the commercial banks are reduced, while those of the Federal Reserve are increased. If the Federal Reserve were to buy $1,000 of securities from commercial banks, the changes in balance sheets would look like this:

Assets		*Liabilities*	
	Commercial banks		
Reserves	+$1,000	No change	
Securities	− 1,000		
	Federal Reserve		
Securities	+$1,000	Commercial bank reserve deposits	+$1,000

Since there is no increase in deposit liabilities of commercial banks, the required reserves are unchanged. Therefore, the entire $1,000 constitutes an increase in excess reserves, which for the banking system as a whole could support an expansion of loans and deposits of $5,000, assuming a 20 per cent reserve requirement and ignoring the withdrawal of coin and currency. Note, however, that the increase in demand deposits (and thus in the total money supply) only occurs if the commercial banks do in fact take advantage of their excess reserves to expand loans. The Federal Reserve's purchase of securities therefore permits an expansion of the money supply but does not bring it about directly.

Suppose, however, that the Federal Reserve purchased $1,000 of government securities from an individual investor or from any business firm other than a bank. The Federal Reserve will normally pay for the securities it buys by giving the seller a check drawn on itself. In most cases, the seller will deposit the check in his account with a commercial bank. That bank in turn will send the check back to the Federal Reserve, which will add the amount of the check to the reserve account of the commercial bank. The balance sheets would show the following changes:

Assets		*Liabilities*	
	Commercial banks		
Reserves	+$1,000	Demand deposits	+$1,000
	Federal Reserve		
Securities	+$1,000	Commercial bank reserve deposits	+$1,000

Note here that even though the commercial bank is not a direct party to the transaction, its situation is substantially affected by it.

Even when the Federal Reserve conducts its open-market dealings with nonbank investors, the most important effects are those on the banks.

In this transaction, the demand-deposit liabilities of the commercial bank are increased directly, since the person who sold securities receives the increase in payment. Thus this transaction directly increases the total money supply. In addition, since commercial bank deposits and reserves are increased by the same amount, the commercial banks gain excess reserves. A $1,000 increase of deposits means that required reserves increase by only $200 (assuming 20 per cent requirement), leaving the banks with $800 more excess reserves, which would permit the banking system as a whole to expand credit by as much as $4,000.

Comparing these two variations will show that both cause commercial bank reserves to increase by the amount of the securities purchased. In the first case, when the Federal Reserve buys from banks, no direct increase in deposits occurs. It is up to the banks to use the reserves by expanding loans. In the second case, however, deposits increase by the same amount as reserves, leaving the banks with only four-fifths as much potential for expansion.

When the Federal Reserve sells securities, the effects are just the reverse of those we have discussed. Bank reserves are reduced, and the money supply may be curtailed, directly or indirectly. The same two variations are relevant. If the Federal Reserve sells bonds to banks directly, it collects for them by deducting the amount of the sale from the reserve deposits of the commercial banks. The respective balance sheets then look like this:

Assets		*Liabilities*	
	Commercial banks		
Reserves	−$1,000	No change	
Securities	+ 1,000		
	Federal Reserve		
Securities	−$1,000	Commercial bank reserve deposits	−$1,000

Commercial bank demand-deposit liabilities, and thus the total money supply, are not affected directly by this transaction. However, because the entire $1,000 comes out of the excess reserves of the banks, there results at the least a curtailment in their expansion potential and perhaps an actual deficiency of reserves, requiring them to reduce their loans. The latter extreme may be regarded as unlikely since the banks have voluntarily bought the securities from the Federal Reserve. They would probably not make such a purchase unless they had excess reserves which they were willing to part with.

When the Federal Reserve sells government securities to individuals, both the money supply and commercial bank reserves are reduced by the amount of the sale. The purchasers of the securities normally will pay for them with their checks on commercial bank deposits. The Federal Reserve will deduct the amount of the checks from the commercial banks' reserves and return the checks to them, where the same sum will be deducted from the accounts of the purchasers of securities.

A sale of $1,000 of securities by the Federal Reserve to nonbank buyers would change the balance sheets in the following manner:

Assets		*Liabilities*	
Commercial banks			
Reserves	−$1,000	Demand deposits	−$1,000
Federal Reserve			
Securities	−$1,000	Commercial bank reserve deposits	−$1,000

Since demand deposits are directly reduced, the total money supply is reduced by the same amount. Getting rid of $1,000 of demand deposits reduces the required reserve of the commercial banks by $200, but that still leaves $800 to come out of excess reserves. This withdrawal means at the least a curtailment in the expansion potential of the banks and may mean that they are actually made deficient in reserves, so that they must either reduce their loans or take some other action to replenish their reserves.

Since Federal Reserve transactions are made anonymously, Reserve officials do not know whether the ultimate other party is a bank or not. Since some issues are held primarily by banks and others chiefly by other investors, Reserve officials could probably call their shots by choosing to deal in one issue rather than another; but in practice, they do not do this. They are chiefly interested in the effects on bank reserves, which are the same in either case.

Since 1953, Reserve officials have normally confined open-market transactions to the shortest-term United States securities—three-month bills. They have desired to avoid the effects on long-term bond prices which direct dealings in longer maturities would entail. Reasons for this will become clearer after we have discussed Treasury finance.

Open-market policy is the most powerful and effective instrument of Federal Reserve control over the monetary and credit situation. It has a degree of quantitative precision which other policies lack and is the only Federal Reserve action which can *directly* increase or decrease the money supply. Furthermore, it may directly affect interest rates by causing variations in the prices of marketable government securities in a manner which we shall examine later. Finally, open-market operations may also influence the actions of banks which are not members of the Federal Reserve System. It is of the greatest importance, therefore, that the student understand precisely how these operations affect the commercial banks.

Federal Reserve Notes. We have discussed three techniques by which the Federal Reserve can influence the monetary and credit situation—changing reserve requirements, rediscounting, and open-market dealings in government securities. The issue of Federal Reserve notes does *not* constitute a separate and independent policy technique of the Federal Reserve. Rather it is a passive instrument, subordinated to the others and to the desires of the public and the banks. The Federal Reserve does not force its notes into circulation but merely pays them out as the banks ask for them (provided, of course, that the commercial bank is willing and able to give up part of its reserve deposit in exchange). The commercial banks in turn are guided by the demands of the public for circulating currency. Since the public usually obtains the currency by drawing from its demand deposits, the total money supply is not directly affected.

The Federal Reserve does not use Federal Reserve notes to carry on its own major operations. When it purchases government securities, it pays by check, not with its own notes. If the seller of the securities wishes currency (an unlikely event), he obtains it from his bank. It is conceivable, of course, that a bank might obtain a loan from the Federal Reserve, or sell securities to it, and take the proceeds in notes rather than reserves. But this would be on the commercial bank's initiative.

On the whole, it is best for the student to treat the issue of Federal Reserve notes as one of the service functions of the Federal Reserve, comparable to the clearing of checks. Both functions are important and add significantly to the effectiveness of the three major techniques we have discussed, but they possess no independent policy significance of their own.

Federal Reserve Policy. The three policy techniques noted above are the instruments of quantitative control through which the Federal Reserve regulates the supply of money and credit. In addition, the Board of Governors regulates margins required for stock-market loans, and in times past has controlled terms of consumer credit and home-mortgage loans. Since these "qualitative" controls do not directly alter bank reserves or the money supply, we shall not deal with them here.

The objectives of Reserve policy have evolved over time, as we shall see. In recent years Reserve officials have accepted the view that their goal is to maintain prosperity without inflation, to avoid either substantial unemployment or rapid increases in the price level. During periods when total spending threatens to be too low, raising the danger of unemployment, Reserve policy tends toward increasing the money supply and easing credit. Reserve requirements and rediscount rates are likely to be reduced and government securities purchased in the open market. The excess reserves of commercial banks increase, and they are encouraged to expand their loans and securities. However, if total spending threatens to be too high, so that prices are likely to rise, the situation calls for credit restraint. The Federal Reserve will sell securities and thereby strip many banks of excess reserves and force some to borrow from the Reserve banks. In the effort to escape debtor status (which may be made additionally unpleasant by higher rediscount rates), the banks will raise their charges and turn down more loan applications.

This neat summary leaves a number of problems untouched. It does not indicate to what extent credit should be tightened or loosened in a given situation; it does not indicate what should be done in a case where prices are rising in a period of high unemployment (as in 1958); and it does not do justice to the unpopularity attached to credit restraint and higher interest rates by some vocal elements in the economy. Detailed examination of Federal Reserve policy can better be made after some exposure to monetary history and theory. For that reason, the last two chapters of the book are devoted to the issues of contemporary monetary policy.

THE TREASURY AND THE MONETARY SYSTEM

Kinds of Operations. The United States Treasury exerts a major influence on our monetary system. This influence arises in part from its issue of monetary liabilities. It issues coins and paper currency for general circulation and gold certificates which serve as reserves for the Federal Reserve banks. Of even greater importance are the effects of revenues, expenditures, and public-debt transactions. The general pattern of revenues and expenditures is determined by Congress and the administration, but Treasury officials possess substantial discretion in refunding the national debt and managing the Treasury cash balance. Treasury financial operations have often been a major monetary influence, sometimes supporting, but at times thwarting, the monetary policies of the Federal Reserve. This influence has been most in evidence during and after major wars.

Treasury Currency Issues. The Treasury participates directly in the creation of money through its issue of coins, silver certificates, and gold certificates.[3] The Treasury does not put its coin and currency issues directly into circulation but deposits them with the Federal Reserve and receives credit in its deposit account. The Federal Reserve then pays out coin and currency to the banks on demand. When the Treasury purchases monetary metal, it pays for it by writing checks on its bank deposit with the Federal Reserve. In effect, the new money may provide the funds to pay for the monetary metal, but it is done indirectly.

The Treasury may not issue gold certificates in excess of the value of gold bullion it holds, and as of 1959 it had not issued quite all the certificates that are legally allowed. Silver certificates are issued with 100 per cent reserves of silver coin or bullion, but the market value of silver is substantially less than its monetary value. In the late 1950s, the silver content of a silver dollar had a value of about 65 cents in the metal market. Other coins contain metal worth even smaller fractions of their monetary value. The gap between money and metal values enables the Treasury to make a profit, called "seigniorage," on its issues of coin and currency.

The relation of Treasury currency issues to metal reserves is shown in the tabulation of Treasury monetary assets and liabilities which appears in Table 4-2.

Table 4-2
Monetary Assets and Liabilities of United States Treasury, June 25, 1958
(Billions of dollars)

Assets		*Liabilities*	
Monetary gold stock	$21.4	Gold certificates	$20.8
Silver coin and bullion	2.4	Coin and currency issues	5.2
Total monetary metal	$23.8	Total	$26.0
Deposits with commercial banks	9.7		
Federal Reserve notes and deposits	0.6		
Total monetary assets	$34.1		

SOURCE: *Federal Reserve Bulletin*, August and November, 1958.

There is only one trouble with this balance sheet—it doesn't balance. The Treasury's monetary liabilities exceed the value of the monetary metal held, because of the issue of unbacked coins and currency (even though there is more gold and silver than is needed to back certificates). If we include the Treasury's bank accounts as monetary assets, they make total assets exceed total liabilities. We could reconcile the accounts by creating a net worth item to put on the liabilities side, but that would mean nothing, since the Treasury has a vast amount of nonmonetary assets and liabilities not shown. However, the statisticians have done almost the same thing. They have created a fictitious liability called "Treasury cash," which equals roughly the gold not required to back gold certificates. Then they created a fictitious asset category called "Treasury currency assets," equal in amount to the coin and currency liabilities and including the silver coin and bullion. With these somewhat arbitrary changes, the balance sheet looks like Table 4-3.

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[3] The Treasury also issues United States notes, but the quantity in circulation is kept constant. Since they are not a factor in expansion, we shall not analyze them further.

Table 4-3

Treasury Adjusted Balance Sheet, June 25, 1958

(Billions of dollars)

Assets		*Liabilities*	
Gold bullion	$21.4	Gold certificates	$20.8
Treasury currency assets	5.2	Treasury currency issues	5.2
Federal Reserve notes	0.1	Treasury cash	0.7
Total	$26.7	Total	$26.7

SOURCE: *Federal Reserve Bulletin,* August and November, 1958.

We shall see later that this truncated balance sheet is useful in analyzing the monetary system as a whole. For present purposes, the more complete, if unbalanced, tabulation is more useful, since most Treasury monetary transactions involve changes in the Treasury's bank accounts. Our next problem is to analyze the way in which the Treasury creates monetary liabilities through its acquisition of gold and silver.

The Treasury and Gold. Gold coins no longer circulate in the United States as money; yet technically the United States is still on a kind of gold standard, and gold serves in a nebulous way as the "base" of our monetary system. Our circulating coin, currency, and demand deposits are not convertible into gold on demand, and the law prohibits the hoarding of gold bullion by private individuals. However, gold may be used in manufacturing or in certain foreign trade transactions, as licensed by the Treasury. The Treasury stands ready to sell gold for approved uses at the statutory price of $35 an ounce (plus a handling charge of about 9 cents). Similarly, the Treasury purchases newly mined or imported gold not destined for an approved private use, paying $35 an ounce (minus the handling charge).

The production of gold in the United States in recent years has been small in relation to our existing gold stock—about $60 million annually. The transactions which have the most important effects on our monetary situation are those involving gold imports and exports. Gold has traditionally served as a major medium of international payments, and that is still its most important function. Although gold itself is not a constituent of our circulating money, movements of gold into or out of the country usually cause changes in the total money supply and may also affect commercial bank reserves. Suppose, for example, that $1,000 worth of gold is imported and sold to the Treasury. The Treasury would pay the seller with a check on its bank account with the Federal Reserve. When the seller deposits the check with a commercial bank, total demand deposits are increased by $1,000. The bank in turn sends the check back to the Federal Reserve, which adds $1,000 to the commercial bank's reserve account and deducts the same amount from the Treasury deposit. The Treasury stores the gold but can issue $1,000 of new gold certificates. It deposits these with the Federal Reserve, which brings the Treasury deposit back up to where it started. In the end, the balance sheets would look like this:

Assets		*Liabilities*	
	Treasury		
Gold bullion	+$1,000	Gold certificates	+$1,000
	Federal Reserve		
Gold certificates	+$1,000	Commercial bank reserve deposits	+$1,000
	Commercial banks		
Reserves	+$1,000	Demand deposits	+$1,000

The result is that a direct increase of $1,000 in the money supply takes place, as demand deposits increase. Furthermore, since commercial banks receive an equal increase in reserves, they now have more excess reserves—$800 more with a 20 per cent reserve requirement. This could support expansion of loans and deposits of up to $4,000. Thus an inflow of gold has an expansionary effect much like Federal Reserve open-market purchases.

The opposite effect occurs if gold is purchased from the Treasury for export. The purchaser commonly will pay the Treasury with a check, which the Treasury will deposit with the Federal Reserve. The amount of the check—say, $1,000—will be added to the Treasury account and deducted from the reserve account of the commercial bank. Then the check will return to the bank on which it is drawn, where the amount will be deducted from the account of the purchaser of gold. The Treasury, however, must withdraw $1,000 of gold certificates from the Federal Reserve, which will cancel the $1,000 previously credited to the Treasury deposit. In the end demand deposits and commercial bank reserves are reduced by $1,000; this in turn means a direct reduction of the money supply by $1,000, together with a reduction of bank excess reserves by $800.

Actual gold transactions are likely to be more complex than the examples we have used here, since the Treasury will usually be dealing directly with a foreign central bank or similar authority. For example, an American might buy British pounds from the British foreign-exchange authorities for dollars. Those authorities could then buy gold from the Treasury in exchange for the dollars. The final effects on money and bank reserves in the United States would still be as we described them. Actually, most purchases of foreign money by Americans are likely to reduce the United States money supply, even if gold is not involved. We shall see why in Chapter 12.

The Treasury and Silver. The monetary status of silver differs from that of gold in several respects. Silver coins and certificates actually circulate as money. The monetary value of silver is well above its market value as metal, and it does not enjoy wide international use as a monetary metal.

In effect United States silver policy has operated as a subsidy for Western silver producers. The Treasury is required by law to purchase domestically mined silver at 90.5 cents an ounce, which has usually been above the market price. Consequently, virtually all domestic output has been sold to the Treasury, so that producers of tableware and other articles have relied on imported silver.

When the Treasury buys silver, the effects are similar to the purchase of gold. The seller receives a Treasury check drawn on its bank account with the Federal Reserve. When deposited in a commercial bank, the check causes an increase in demand deposits. When it is returned to the Federal Reserve, bank reserves increase by the same amount. Thus the money supply is increased, and banks have more excess reserves. The Treasury in turn can issue more coin and currency to the Federal Reserve to replenish its bank account. This coin and currency is then paid out through the commercial banks whenever the public wants it.

The rising costs of production kept down domestic silver production in the late 1950s. The Treasury made purchases of only about $50 million to $60 million worth annually. This just kept pace with the need for increased amounts of silver coin in circulation. From mid-1947 to mid-1959, Treasury holdings of silver coin and bullion remained virtually constant, while the value of silver coins outstanding increased from $1 billion to $1.7 billion. (Minor coin expanded from $300 million to $500 million in the same period.) During this period the circulation of silver certificates expanded only $200 million, less than the amount of obsolete currency withdrawn from circulation.

The silver-purchase policy has been widely criticized as a wasteful subsidy. If silver is deemed necessary for our coins (which is questionable), why pay more than the market price for it? Certainly there is little need for a silver-backed paper currency; silver certificates could be replaced by Federal Reserve notes of appropriate denomination.

TREASURY RECEIPTS, EXPENDITURES, AND THE NATIONAL DEBT

Deficit Financing. In practice, the major influence of the Treasury on the monetary system arises from the pattern of fiscal policy. The government's tax receipts and current expenditures are never precisely equal. When expenditures exceed revenues, the government has a deficit, which is usually financed by borrowing. When revenues exceed expenditures, the resulting current surplus is usually used to repay part of the national debt. Surpluses, deficits, and the management of the public debt can have substantial effects on the money supply.

Let us look first at the case of a government deficit. The Treasury might conceivably finance this by issuing new currency and spending it directly, as it did during the Civil War. That would obviously increase the money supply, and if the currency were deposited in banks, it would increase their reserves as well. As an alternative, the Treasury might spend its existing cash balance—its deposits with commercial banks and the Federal Reserve. This would increase the privately held money supply by shifting funds from Treasury to private deposits.

If the Treasury borrows to finance the deficit, as it would most probably do, the effects depend on where the funds come from. Although the Treasury cannot force anyone to buy its new bond issues, the terms of the bonds can be arranged to attract certain investors. At times a negative approach has been used, and some categories of investors, such as banks, have been forbidden to buy certain bond issues. It makes a difference in the monetary effect whether bonds are sold to banks, to nonbank investors, or to the Federal Reserve.

If the Treasury borrowed funds from nonbank investors and spent them, there would be no change in the money supply or in commercial bank reserves. Money passes from the public to the Treasury and back again to the public.

If the Treasury were to borrow $1,000 from banks, they would create additional Treasury deposits, and initially their balance sheets would show the following changes:

Securities	+$1,000	Treasury deposits	+$1,000

When the Treasury wrote checks on these deposits, the public's deposits would increase, and with them the money supply. The banks would end up in this position:

Securities	+$1,000	Demand deposits	+$1,000

The transaction would not affect the quantity of commercial bank reserves; but since the banks have larger demand-deposit liabilities, their required reserve would be increased and therefore excess reserves reduced. Thus it is conceivable that lending to the government might take the place of increased private lending by the banks.

Finally, the Treasury might borrow from the Federal Reserve, although it has seldom done this directly. If this were done, both the money supply and bank reserves could be increased. When the Federal Reserve bought the bonds, it would pay for them by increasing the amount of the Treasury's deposit credit. When the Treasury wrote checks on this credit, the people who received them would deposit them with commercial banks, and demand deposits would be increased. When the banks returned the checks to the Federal Reserve, they would receive an equivalent amount of additional reserves. The final balance sheet position for a $1,000 transaction would look like this:

Assets		*Liabilities*	
		Federal Reserve	
United States securities	+$1,000	Commercial bank reserve deposits	+$1,000
		Commercial banks	
Reserves	+$1,000	Demand deposits	+$1,000

Not only is the money supply increased, but the banks are provided with the means of increasing it further. While such direct borrowing by the Treasury has been uncommon and often not permitted by law, like results can occur if the Federal Reserve buys securities in the open market when the Treasury is selling bonds to raise funds.

In summary, Treasury deficits financed by borrowing from the nonbank public change neither the money supply nor bank reserves. Deficits financed by loans from banks increase the money supply but reduce bank excess reserves, since total reserves are not changed. Borrowing from the Federal Reserve increases both money and reserves and thus resembles issuing new currency. One should not conclude from this that deficits financed by borrowing from nonbank investors cannot be inflationary. Such borrowing may put in motion money which formerly was held idle. We shall consider this possibility later.

During the depression of the 1930s and throughout World War II, the Federal government incurred deficits in sixteen consecutive years. Large sales of bonds to banks and the Federal Reserve worked an immense cumulative effect on the money supply, which rose from about $26 billion in 1929 to over $100 billion in 1945. During the 1930s, commercial banks bought $12 billion of government securities. The resulting rise in the money supply was desirable during a period of unemployment. But during World War II, commercial and Federal Reserve banks bought almost $100 billion of United States securities. The Reserve bank purchases supplied commercial banks with all the reserves they needed. The resulting increase in the money supply, coming when the economy was working close to full capacity, contributed greatly to price inflation.

Treasury Surpluses. The effects of Treasury surpluses will also depend on what the Treasury does with the money. Since tax revenues are paid chiefly by checks drawn on commercial banks, the money supply will be reduced when surplus revenues are transferred from the public's deposits into the Treasury accounts. If the Treasury uses the funds to redeem securities held by the public, the money supply will return to its original level; bank reserves will be unaffected.

However, suppose the Treasury collects a surplus of $1,000 and uses it to redeem securities held by banks. In the first stage, when the revenue is received, the balance sheets of the banks would show these changes:

Assets	*Liabilities*	
No change	Demand deposits	−$1,000
	Treasury deposits	+ 1,000

In the second stage, the increased Treasury deposits would be canceled in payment for securities. The banks would end up in this position:

Securities	−$1,000	Demand deposits	−$1,000

Thus the money supply is reduced; but bank excess reserves are increased, since their deposit liabilities fell while total reserves remained unchanged. The increase in excess reserves is sufficient to replenish the money supply.

During a period of booming business, there is not likely to be much difference between these two cases. Banks will expand their loans to fill any gap made by tax surpluses. If the government is trying to reduce inflationary pressures, surplus tax revenues should be used instead to retire securities held by the Federal Reserve or should be held idle in the Treasury deposit with the Federal Reserve. Then the funds will not be returned to circulation. Further, bank reserves will be reduced by the full amount of the revenue surplus when the funds are transferred to the Federal Reserve.

Refunding the Public Debt. Even when there is not a large surplus or deficit, the Treasury can influence the money supply by its management of the existing national debt. A large volume of securities matures each year and must be refunded by issuing new securities. If Treasury decisions concerning types of securities to issue alter the pattern of security ownership, the money supply may be affected. A shift of securities into banks might increase the money supply, and a contrary movement might reduce it. However, the banks can create deposits to buy securities only if they have the reserves to do so. Consequently, Treasury refunding operations are not likely to increase the money supply unless the Federal Reserve permits.

Public-debt management is the area in which Federal Reserve and Treasury responsibilities greatly overlap. The interest rates which the Treasury must pay on refunding issues depend on the general ease or tightness of credit, which is always influenced by Federal Reserve actions. Treasury authorities understandably prefer to be able to sell securities at low interest rates and are likely to oppose credit restraint. Technically, the Treasury's own monetary powers are not strong enough to overpower actions of the Federal Reserve. Politically, however, the Treasury usually carries more weight. If Treasury officials arbitrarily decide to issue securities at low interest rates, they may succeed in putting the responsibility on the Federal Reserve to see that refunding operations do not fail. The Federal Reserve accepted such responsibility in the period 1937–1951, with the result that its capacity to exercise general credit control was seriously weakened. Since 1951 the Reserve officials have gone to extreme length to avoid responsibility for the public debt. They have been able to do this because the Treasury, and behind it the administration, has backed them up and has accepted the interest-rate terms dictated by market conditions; but the political opposition to such conduct indicates that there is no assurance it will continue.

The Treasury Cash Balance. We have noted that the Treasury keeps funds on deposit with the Federal Reserve and with commercial banks. Treasury decisions about where funds shall be kept can influence the excess reserves of the banks. If the Treasury shifted its funds from commercial banks to the Federal Reserve, or if it deposited with the Federal Reserve checks received from the public, these actions would carry an equivalent amount of bank reserves out of existence. The Federal Reserve would credit the sum in question to the Treasury deposit and deduct it from commercial bank reserves. This might cause drastic tightening of credit. On the other hand, a release of funds by the Treasury into commercial banks might encourage undue credit expansion.

In practice, the Treasury attempts to minimize such disturbances. It keeps most of its funds on deposit with commercial banks. Thus, periods when Treasury deposits are increasing through tax revenues or bond sales do not entail reduction of bank reserves. The funds are kept in commercial banks until needed and are then transferred to the Federal Reserve (after prior notice to the commercial banks). The actual Treasury expenditures are almost always made with checks drawn on the Federal Reserve banks.

GENERALIZATIONS AND CONSOLIDATIONS

Federal Reserve and Treasury—Summary and General Observations. There is much basic similarity between the monetary roles of the Federal Reserve and the Treasury. Each issues monetary liabilities of its own, but its chief monetary effects are on the quantity of demand deposits and bank reserves. Both deal in United States government securities—the Treasury as issuer and redeemer, the Federal Reserve in its open-market operations. Both can create demand deposits and bank reserves by buying assets from the public. Each enjoys an area of administrative discretion within a framework of law.

The Federal Reserve and the Treasury between them issue all the circulating coin and currency, but play a passive role in determining the amount, allowing the public to determine how much it desires. However, the Federal Reserve and the Treasury indirectly influence the volume of coin and currency in circulation by their influence on the total money supply.

Although it can change the money supply directly through open-market operations, the Federal Reserve operates chiefly on commercial bank reserves. It can increase the quantity and expansion potential of reserves by lowering reserve requirements and can increase the amount of reserves by purchasing government securities in the open market or by lending to banks. If restraint is desired, opposite policies can be adopted.

Treasury deficits and purchases of gold and silver usually enlarge the money supply, while surpluses and sales of gold and silver usually decrease it. These are policies over which the Treasury itself has little discretionary power. However, if it wishes to maximize the expansionary force of its policies, it will try to sell securities to banks and particularly to the Federal Reserve. It will keep a maximum amount of its deposits with commercial banks and will issue the maximum amount of coin and currency permitted, using its profits from seigniorage as a source of revenue to finance expenditures. On the other hand, if the Treasury wants to minimize the expansionary effects of its policies, it will sell securities to nonbank investors. It will keep a maximum amount of its cash balance on deposit with the Federal Reserve and will refrain from using its coinage profits as a source of expendable funds.

There is one important difference between some Treasury transactions and those of the Federal Reserve. When the Treasury collects a tax surplus, the money is withdrawn directly from the flow of private incomes and expenditures in a manner which the Federal Reserve cannot duplicate. Similarly, Treasury deficits channel funds directly into the stream of private incomes and expenditures, which Federal Reserve operations cannot do. Federal Reserve open-market transactions with the nonbank public can change the money supply directly, but they do so by altering the composition of investors' asset holdings without changing their incomes or total wealth. Thus, while Treasury and Federal Reserve actions can have similar effects on the money supply and bank reserves, Treasury surpluses and deficits will ordinarily have additional effects on incomes and expenditures which other monetary transactions do not have.

A Consolidated Monetary Balance Sheet. By now the student is painfully aware of the great variety of transactions which may affect the money supply. In recent years, economists have developed a set of numerical accounts which deal systematically with the factors directly affecting the money supply and can be used to determine the monetary effects of any transaction. This device is actually a consolidated balance sheet in which are added together the balance sheets of the banks, the Federal Reserve, and the Treasury. Items appearing on both sides are eliminated, leaving an account of transactions with the rest of the economy, as shown in Table 4-4. The student is urged to try his hand at deriving these data from Tables 3-4, 4-1, and 4-3.

On the asset side of the account, we net out such items as commercial bank reserve deposits and gold certificates, since these are also liabilities of the monetary agencies. The assets of the monetary system as a whole consist of gold, loans and securities of banks and the Federal Reserve, and that peculiar item called Treasury currency assets. The liabilities, after netting out items appearing on both sides, can be divided into two categories—monetary and nonmonetary. Monetary liabilities include, of course, demand deposits and coin and currency held outside the monetary system. Nonmonetary liabilities include Treasury deposits and cash, time deposits, and the capital accounts of banks and the Federal Reserve. Since total assets equal total liabilities, we can say that total assets minus nonmonetary liabilities equal monetary liabilities—the money supply. Thus changes in the money supply can be linked to variations in the assets and nonmonetary liabilities of the monetary system.

In Chapter 2 we observed that there are three factors accounting historically for most variations in the quantity of money—precious metals, bank lending, and government finance. Now we can point out that these three are the basis for the assets of the monetary system shown in Table 4-4. Gold and silver furnish about 10 per cent, government finance (in the form of national debt) about 40 per cent, and other bank credit 50 per cent of the basis for our monetary system.

Table 4-4

Consolidated Monetary Balance Sheet, June, 1958

(Billions of dollars)

Assets		*Liabilities*		
Monetary gold stock	$ 21	Money supply:		
United States securities—		Demand deposits	$109	
Federal Reserve	25	Coin and currency (net)	28	
United States securities—		Total monetary		$136
commercial banks	64	Nonmonetary liabilities and capital:		
Other bank loans and securities	115	Time deposits	$ 64	
Treasury currency assets	5	Treasury deposits and cash	11	
		Capital and net miscellaneous	19	
		Total nonmonetary		94
Total assets	$230	Total liabilities		$230

Total assets	$230
Less total nonmonetary liabilities	94
Total money supply	$136

SOURCE: Tables 3-4, 4-1, 4-3 consolidated. Details may not add up to totals because of rounding.

All transactions which directly affect the money supply can be expressed in terms of this table. Any increase in total monetary assets will increase the money supply, unless nonmonetary liabilities and capital absorb the increase. Any decrease in nonmonetary liabilities and capital will increase the money supply unless monetary assets decrease an equivalent amount. In practice, most of the variations of significant magnitude in the money supply have been initiated by changes in monetary assets. Nonmonetary liabilities and capital are more passive variables which are not subject to large independent changes. We shall examine the historical behavior of the money supply and its determinants subsequently.

Determinants of Member Bank Reserves. As a companion to the consolidated statement of direct determinants of the money supply, statisticians have developed a statement of determinants of member bank reserves, which is shown in Table 4-5. Reserves may be increased by a rise in any item entered under "sources"—by a gold inflow, increased Federal Reserve credit, expanded Treasury currency issues. Reserves might also rise if the "competing uses" item declined—in particular, if there were a decrease in currency in circulation.

Tables 4-4 and 4-5 contain many of the same items. Changes in such items may alter both money supply and reserves. Increases in the gold stock, in Reserve bank holdings of government securities (included in Federal Reserve credit), or in Treasury currency issues can all raise both money supply and reserves.

These tables provide a summation of the technical material covered in these two chapters. All the permutations and combinations of monetary change can be expressed in terms of the consolidated statements. However, it is worth stressing that the major direct determinant of the money supply is commercial bank holdings of loans and securities of all types. This depends on the volume of bank reserves, changes of which occur largely in response to variations in Federal Reserve credit. Reserve credit is a fulcrum on which the rest of the structure rests. While changes may develop independently anywhere in the system, they can usually be augmented or offset by Reserve credit to produce the desired ultimate pattern.

Table 4-5

Determinants of Member Bank Reserves, June 25, 1958

(Billions of dollars)

Sources:		
Monetary gold stock	$21	
Federal Reserve credit	26	
Treasury currency issues	5	
Total		$53
Competing uses:		
Currency in circulation and in banks	$31	
Treasury cash	1	
Treasury deposits in Federal Reserve and miscellaneous Federal Reserve accounts (net)	2	
Total (deduct)		34
Member bank reserves		$19
Less required reserves		18.3
Excess reserves		$ 0.7

SOURCE: *Federal Reserve Bulletin,* August, 1958.

QUESTIONS FOR STUDY

Compute and explain the effects of each of the following, taken separately, on the dollar volume of bank reserves, the public's money supply, and the unused lending power of the banks. Assume all banks are members of the Federal Reserve System, the reserve requirement is 20 per cent, and all transactions are made by check unless specified otherwise. Show how each transaction might be expressed in terms of the consolidated accounts of direct determinants of the money supply and of member bank reserves.

1. Federal Reserve buys $1 billion government securities from banks.

2. Banks repay $1 million borrowed from Federal Reserve.

3. Federal Reserve sells $1 billion government securities to nonbank public.

4. Treasury borrows $1 billion from Federal Reserve and spends the money to buy goods and services from the public.

5. Same as case 4, except that Treasury borrows from
   a. Commercial banks
   b. Nonbank investors

6. Individuals buy $2 billion of gold from the Treasury for export.

7. The Treasury collects a tax surplus of $3 billion and uses it to repay securities held by
   a. Federal Reserve
   b. Commercial banks
   c. Nonbank investors

8. Treasury shifts $10 million of its cash balance from Federal Reserve to commercial banks.

9. Assume that the items included as direct determinants of the money supply had the following values. Arrange them in proper order and determine the size of the money supply. Some items in the list do not belong there. Explain which they are and why.

	Billions
Time deposits	$ 42
Monetary gold stock	25
Capital and miscellaneous liabilities	12
Commercial bank loans and securities	130
Treasury cash and deposits	5
Federal Reserve security holdings	20
Gold certificates	24
Treasury currency assets	4
Commercial bank reserves	16

SUGGESTED READINGS

Board of Governors, Federal Reserve System: *The Federal Reserve System: Purposes and Functions,* Washington, 1954.

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PART THREE

MONETARY THEORY

CHAPTER 5

THE MONEY ECONOMY: A DESCRIPTIVE INTRODUCTION

INTRODUCTORY

Pattern of Money Flow. In Chapters 3 and 4 we dealt with the quantity of money in the economy and noted its composition and the factors directly determining its amount. The quantity of money is economically significant through its relation to the volume of expenditures and their influence on production, employment, and prices. In this chapter we shall describe the manner in which money expenditures flow through our economic system. In the following chapters we shall examine the causes of variations in the flow of expenditures and the consequences for economic welfare of such variations.

We noted in Chapter 1 that the basic money flow in the economy is the circular flow of spending from households to business firms and back again. In this simple pattern, each dollar's worth of goods sold to households gives rise to two dollars of payments—one in paying for the goods themselves, the other in paying income to the households whose resources produced the goods. Although the real world is much more complex, the principle remains valid that the production and sale of goods give rise to income of equal money value. However, not all the income goes to individuals. Part is retained within the firms for reinvestment, and a portion goes to the government in taxes. Correspondingly, we must make a place in our pattern for the flow of funds back from the government to producers and, of course, allow for a large volume of payments from one firm to another. For most products, there are several firms involved between the initial resource inputs and the final sale to the consumer.

All the transactions we have been describing are involved in the "main money circuit" of payments. They involve payments for currently produced goods and currently rendered services. (Taxes fit this description from the standpoint of the community as a whole, if not for individuals separately.) It is main money circuit transactions which are most closely linked with economic welfare, through their effects on production, employment, and prices. And it is with them that we shall be chiefly concerned.

Not all payments are in the main money circuit. There is a second large class of payments involving the purchase and sale of financial assets. In this category are included borrowing and repayment and transfers of existing stocks, bonds, and IOUs of all kinds. We shall call the area of these payments the "financial circulation." Transactions in this area fall roughly into three classifications. First, households, businesses, or government may "finance" expenditures on goods and services by borrowing or issuing securities or claims. We shall call this "spending on credit." Second, any of these three sectors in the economy may acquire financial assets with funds received in current income. We shall call this "financial saving." Third, there will be a large volume of "financial turnover" transactions, in which existing claims are transferred from hand to hand or are refunded when the issuer redeems maturing obligations by issuing new ones.

Clearly, the two areas of payment overlap and interact. Financial saving pours funds from the main circuit into the financial circulation, while spending on credit moves them in the other direction. Conse-

Table 5-1
Money Transactions in the United States, 1958
(Billions of dollars)

Main money circuit:		
1. Purchases of final output (gross national product)		
a. By consumers	$275	
b. By business, government, foreign	140	
2. Income payments to individuals	215	
3. Intermediate product transactions	665	
4. Tax payments and refunds	120	
Total (rounded estimate)		$1,400
Financial circulation:		
5. Installment lending and repayment	$ 80	
6. Mortgage lending and repayment	70	
7. United States Treasury borrowing and repayment	210	
8. Other bank lending and repayment	360	
9. Transactions in newly issued securities	65	
10. Transactions in existing securities	780	
11. Commodity exchange transactions	50	
12. Other borrowing and repayment	70	
Total financial (rounded estimate)		$1,700

Miscellaneous:		
13. Second-hand goods and real estate	$ 80	
14. Grants and donations (nonpersonal)	25	
15. Gambling	40	
16. Other	60	
Total miscellaneous (rounded estimate)		200
Total transactions		$3,300

Notes to Table 5-1

Total transactions were estimated to be approximately equal to the total debits to private demand-deposit accounts as estimated by the Federal Reserve Board of Governors in their mimeographed release No. 756.

Main circuit transactions and item 13 were initially estimated for 1953 and 1955 from Federal Reserve money-flow data in *Federal Reserve Bulletin,* October, 1957, p. 1191, and *Flow of Funds in the United States, 1939–1953.* Data for 1958 were estimated by raising earlier figures in proportion to the increase in gross national product.

Financial transactions were estimated as follows:

Item 5: Installment lending and repayment data are given in the *Federal Reserve Bulletin.* Estimate is rounded, excludes transactions of nonfinancial credit sources, but adds $10 billion for estimated secondary transactions in installment paper.

Item 6: Mortgage lending and repayment data for some institutions are published in the *Federal Reserve Bulletin.* Estimate projects this relationship to total loans outstanding and adds $5 billion for estimated secondary transactions.

Item 7: Treasury public debt transactions data appear in its *Annual Report.*

Item 8: Bank lending and repayment estimated on the assumption that loans turn over three times a year. Estimate excludes installment and mortgage loans and United States securities.

Item 9: Transactions in newly issued securities estimated to equal three times the volume of new issues reported in the *Federal Reserve Bulletin,* excluding United States securities.

Item 10: Transactions in existing securities were estimated to include the following: (*a*) stock transactions, $155 billion; (*b*) open-market paper, $150 billion; (*c*) United States securities, $450 billion; and (*d*) other bonds, $25 billion.

a. Stock transactions equals total volume of trading on organized exchanges plus one-third for over-the-counter trading multiplied by 3 as the estimated number of payments involved per dollar of trading.

b. Includes $100 billion for dealers and major finance companies estimated by New York Clearing House Association in *Member Bank Reserve Requirements, Hearings before the Committee on Banking and Currency,* United States Senate, March, 1959, p. 171. Estimate adds $50 billion for payments by investors.

c. NYCHA estimate for debits of New York dealers implies annual payments of $225 billion (*ibid.,* p. 172). Estimate adds equal amount for other transactors.

d. Bond trading estimated to equal over-the-counter stock trading; transactions volume assumed to be twice trading volume. See 1949 data in Irwin Friend, *Activity on Over-the-counter Markets,* University of Pennsylvania Press, Philadelphia, 1951.

Item 11: Commodity exchange transactions estimated to equal twice the volume of trading, as estimated by U.S. Department of Agriculture.

Item 15: Gambling estimated from *Annals of the American Academy of Political and Social Science,* May, 1950, pp. viii, 32, 46, and 65.

Other items (12, 14, 16) are wild guesses.

quently, the behavior of the financial circulation is influential in determining the behavior of the main money circuit.

Magnitudes of Money Flow. Table 5-1 shows some rough estimates of the volume of transactions in the economy in 1958. Our figure for total transactions, $3.3 trillion, is the estimate given by the Federal Reserve Board for total *debits* to private demand-deposit accounts (all checks drawn and withdrawals). Debits include some things which are not genuine payments—for example, conversion of demand deposits into currency, or transfers among deposits held by the same depositor in different banks. They also omit some things we want to include—government transactions, bank loans, and payments made with currency. However, the errors are roughly compensating, so that the total given by the debits series is a handy approximation to the volume of total money transactions in the economy.

Our data show total money transactions in the main circuit amounted to about $1.4 trillion. About $275 billion represented consumer spending for current output, and another $140 billion came from purchases of final goods and services by government and business. In combination, these items represent the transactions toward which the rest of the productive process is directed. Some of these expenditures put money directly into the hands of income recipients, such as government employees or owners of unincorporated businesses. In addition, some $215 billion of income payments to persons occurred through separate transactions. The largest category of main circuit payments was that of "intermediate" transactions by business firms with each other. These payments arise from the movement of goods through the various stages of production: from raw materials to finished product, from manufacturer to wholesaler to retailer.

Transactions in the financial circulation were slightly larger, totaling about $1.7 trillion. The greatest part of this total consisted of pure turnover transactions, of which the continual refunding of the national debt, private transactions in government securities, and trading on stock and commodity exchanges accounted for the largest portion. More closely linked with the main circuit were transactions involving borrowing or new securities issues. Even here, much of the gross volume represents turnover, as funds repaid by previous borrowers were lent out again to new ones. However, a substantial portion of the proceeds from gross borrowing went into expenditures for current output, but it is more important to isolate the net amount of funds advanced from savers to borrowers. The Federal Reserve estimates that amount at only about $15 billion, if each major sector of the economy is shown net. About $12 billion came from consumers, $3 billion from financial institutions (reinvesting their income), and a small amount from corporations. The Federal government took \$8 billion, state and local governments \$4 billion, and noncorporate business \$3 billion.[1]

Among the miscellaneous transactions, a substantial volume involved existing real assets, chiefly land and buildings, but also used cars, machinery, etc. These are related to main circuit transactions in currently produced buildings and other durable goods.

Plan of Analysis. It is the volume of expenditures in the main money circuit with which we are chiefly concerned, and of these, most particularly the expenditures for currently produced goods and services. These expenditures have an important relation to economic welfare, for they determine, in the short run, the levels of output and employment which the economy will attain within the limits of existing resources and are a major factor in determining prices. In the succeeding sections of this chapter, we shall dissect the main money circuit to examine its structure as depicted by the national income accounts. Material in this chapter will be largely descriptive, but in the chapters immediately following we shall attempt to answer two important questions about spending for current output. What causes its level to change, and how do such changes affect economic welfare?

However, we shall not ignore the financial circulation, either. Conditions in that area influence the behavior of main circuit transactions, particularly through interest rates, security prices, and the ease with which loans can be obtained. For this reason, we shall return our attention to the financial circulation in the last part of this chapter. In the subsequent treatment of monetary theory, factors originating in the financial circulation will be continually in view. When we have concluded our examination of monetary theory, we shall examine the structure and functioning of the financial circulation in relation to some other aspects of economic welfare (Chapters 10 and 11).

GROSS NATIONAL PRODUCT

Output and Expenditure. In examining the main money circuit, our chief concern is with the volume of expenditures to buy currently produced goods and services. The best measure of this is the national-income concept of "gross national product" (*GNP*). Gross national product is defined as the money value (at market price) of goods and services produced in the economy during a specified period. Goods and services are included in *GNP* only when they reach the final purchaser; in this way we avoid double-counting the many intermediate transactions through which a product passes. We do not add the total value of steel and the total value of automobiles, for the latter includes a substantial part of the former. We shall illustrate this type of calculation in more detail later.

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[1] *Federal Reserve Bulletin,* August, 1959, p. 1047.

GNP is also a measure of the expenditures to buy current output, and it is in this sense that we shall examine it here.[2] We shall show how the *GNP* concepts and categories can be used to depict the basic circular flow of income and expenditure in the main money circuit. The descriptions and definitions involved then serve as the basis for more detailed explanations of the behavior of the flow.

GNP expenditures are classified according to the major spending sectors of the economy. While the largest portion of spending is done by consumers, we must also allow for purchases of final output by government, business firms, and foreign buyers. Let us examine each of these categories more carefully.

1. "Personal consumption expenditures" (or simply consumption) refers to purchases of current production by consumers for their own satisfaction or utility.

2. "Government purchases" of goods and services includes all the purchases of final output by Federal, state and local governments. This category includes purchases from business firms of items like planes and typewriters. It also includes the purchases of services from the people who work for the government. This category does not include all government expenditures, for it excludes government "transfer payments." These expenditures are income payments such as pensions and interest payments on government securities, for which the government receives no currently produced goods or services in exchange.

3. The treatment of business expenditures in *GNP* accounting is complex. Most business expenditures go for intermediate products and services which are used up in making final products (the steel in automobiles, etc.) and are therefore not separately included. However, business firms are themselves the final buyers of capital goods. These consist of such items as equipment and buildings which are necessary to the processes of production and distribution. Capital goods also include business inventories—stocks of goods or materials on hand. The distinction between consumer goods and capital goods turns largely on the purpose for which they were bought. A can of beans is a consumption good when purchased by someone who plans to eat the contents, but it is a capital good while owned by the grocer who holds it for resale.

Business purchases of currently produced capital goods are included in the *GNP* component called "gross private domestic investment" (or simply investment). This category includes all purchases of durable capital goods, such as machinery or buildings, whether acquired to replace worn-out items or to expand productive capacity. It also includes *net increases* in business inventories during a year. Inventory replacements are intermediate products and thus do not count separately; but the goods added to business inventories are items for which the firms are, for the year in question, the final buyers. Current production of residential housing is also included in investment, rather than consumption. Houses are a kind of consumer capital yielding services in the future, and many houses are rented on a business basis. However, other types of consumer capital, such as automobiles, are classified as consumption goods.

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[2] Actually, about 5 per cent of total *GNP* consists of output not actually sold for money—food consumed by the producers, current rental value of owner-occupied homes, etc.; but no great inaccuracy arises if we assume all output flows through the money economy.

The use of the term "investment" in this context is perhaps unfortunate, since it does not accord with the common use of the term to refer to any purchase of an asset for earnings or profit. Investment in the *GNP* sense does not include purely financial transactions such as purchases of stocks, bonds, or existing real estate. It is restricted to purchases of currently produced real capital goods.[3] The student should take special care to memorize this specialized use of the term "investment" and to be able to distinguish it from financial investment in general.

4. The treatment of foreign trade in *GNP* accounting is also somewhat complex. In a self-sufficient economy, the total value of goods produced would always equal the amount taken by domestic consumers, business, and government. But when an economy engages in foreign trade, part of its total output is exported, and part of the goods acquired by consumers, business, and government comes from imports. If exports exceed imports, domestic production exceeds domestic acquisition of goods.

GNP accounting deals with foreign trade by counting imported products in the totals for consumption, investment, and government purchases. It then treats as intermediate products the amount of exports required to pay for the current imports. Then the excess of exports over imports is added in as a separate component of *GNP* expenditures, in order to make total expenditures equal the value of output. For the United States, the amount of net exports is usually a very small portion of *GNP* expenditures, and we shall not devote much attention to it in this part of the book. However, the student should bear in mind that the net export figure seriously understates the importance of foreign trade in our economy. The bulk of our exports is not shown separately in *GNP* because an equal amount of imports is included in the totals for consumption, investment, and government purchases.[4] We shall deal with international transactions at length in Chapters 12 and 13.

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[3] When firms produce their own capital goods, instead of buying them from other firms, the "purchase" refers to the expenditures for the labor, materials, etc., to produce them.

Table 5-2 shows the volume of the components of *GNP* expenditure in 1958. Consumption expenditure accounted for about two-thirds of the total. Government furnished one-fifth, and investment one-eighth.

Table 5-2

GNP Expenditures, 1958

(Billions of dollars)

Type	*Expenditure*	*Per cent*
Consumption (*C*)	$293	66
Gross private domestic investment (*I*)	55	12
Government purchases of goods and services (*G*)	93	21
Net exports:		
Exports $22.6 Imports $21.3	1	*
Total expenditures	$442	100

* Less than 0.5 per cent.

SOURCE: *Survey of Current Business*, July, 1959. Details may not add up to totals because of rounding.

This manner of looking at *GNP* tells us who bought it and how much they spent. It focuses attention on the demand for goods and services. Much of our subsequent analysis will be devoted to trying to explain why these expenditures behave as they do.

GNP as Total Values Added by Producers. A second way of looking at *GNP* is from the standpoint of the producers. *GNP* data can be used to measure the net output of various sectors of the economy and their receipts from the sale of that output, for by definition the value of output sold must equal the receipts from its sale.

GNP does not, of course, include the gross output or sales receipts of all producers. Earlier, we eliminated double-counting in *GNP* by valuing all goods when they reached the final buyer and leaving out intermediate product transactions. We can achieve this result in another way—by summing up the *value added* by each firm in the economy to the productive process. Value added is a measure of the net contribution each firm makes to total output. It is measured by deducting from the gross receipts each firm gets from sales the total payments it makes to other firms for intermediate products and services used up in the productive process. Payments for capital goods are not deducted.

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[4] In some discussions of national income concepts, net exports are represented by the term "net foreign investment," since an export surplus is often financed by lending to foreigners or acquiring assets from them. However, net foreign investment differs statistically from net exports by the amount of gifts and grants to foreigners.

We can illustrate the calculation of value added by the following example. Suppose a loaf of bread sells at retail for 20 cents. The grocer buys it for 17 cents from the wholesaler, who gets it for 13 cents from the baker. The baker pays 8 cents for flour, out of which the miller pays 4 cents to the farmers for wheat, and the farmers pay 1 cent to other firms for seed, fertilizer, etc. If we merely added these figures together, we would overstate total production considerably. Instead, we can add up the value added at each stage, as follows:

Firm	*Receipts*	*Paid other firms*	*Value added*
Retailer	$0.20	$0.17	$0.03
Wholesaler	0.17	0.13	0.04
Baker	0.13	0.08	0.05
Miller	0.08	0.04	0.04
Farmer	0.04	0.01	0.03
Others	0.01	...	0.01
Totals	$0.63	$0.43	$0.20

Total transactions and gross receipts have amounted to 63 cents, but 43 cents of this represents intermediate transactions not counted separately in the value of output. By removing this sum we are left with values added totaling 20 cents, which is of course the same total we obtained by counting the loaf of bread at its retail price. By using this method, we have obtained an estimate of the contribution made by each sector of the economy in producing the loaf of bread.

The value added by each firm represents the market valuation of its contribution to production. Table 5-3 shows the contribution of each of the major sectors of the economy to *GNP* in 1958.

Table 5-3

Value Added by Major Sectors of the Economy, 1958

(Billions of dollars)

Sector	*Gross value added*
Agriculture, forestry, fisheries	$ 24
Mining and construction	28
Manufacturing	128
Wholesale and retail trade	75
Finance, insurance, real estate	45
Transportation, communication, public utilities	41
Services	51
Government	47
Rest of the world	2
Total gross national product	$442

SOURCE: *Survey of Current Business,* July, 1959; indirect tax allocation estimated by the author. Details may not add up to total because of rounding.

Looking at *GNP* as value added tells us who produced it—the contribution to total output by each of the sectors of the economy. This approach also tells us how much of its gross revenue each sector had left after paying other firms for intermediate products and services.

GNP as Gross Incomes Received. Our next step is to see what each sector does with the revenue it receives. Besides the payments to its suppliers for intermediate products, which were deducted in calculating value added, each firm must meet three other categories of accounting costs: payments to individuals for wages, interest, and rent; payments to the government for taxes based on sales, production, and property; and depreciation and other capital consumption allowances representing the recovery of funds previously invested in capital assets. What remains after these costs is the profit accruing to the owners of the firm. For unincorporated businesses, this profit is all counted as personal income to the owners. For corporations, part of the profits goes to the government in profits taxes, part is reinvested in the firm, and part is distributed as dividends to the stockholders.

We shall call these cost and profit items "gross income shares." Since *GNP* equals total values added by all producers, *GNP* will also equal the total of gross income shares for the economy. The division of *GNP* into gross income shares for 1958 is shown in Table 5-4.

Table 5-4
Gross Income Shares, 1958
(Billions of dollars)

Type of income	Recipient			Total
	Persons	Business	Government	
Compensation of employees	$257	...	...	$257
Interest and rental income of persons	26	...	...	26
Income of unincorporated business	47	...	...	47
Indirect business taxes	...	...	38	38
Capital consumption allowances	...	38	...	38
Corporate profits taxes	...	...	18	18
Dividends paid to persons	12	...	...	12
Undistributed corporate profits	...	7	...	7
Totals	$342	$44	$56	$442

SOURCE: *Survey of Current Business,* July, 1959. Details may not add up to totals because of rounding; also, some small miscellaneous items have been omitted or consolidated.

GNP as Disposable Incomes and Net Government Revenue. Our next step is to link these gross income accruals to the expenditures of consumers, business, and government. Before we can do this, it is necessary to determine how much income is actually available for spending or saving—how much "disposable income" is left to persons and business after taxes.

To determine personal disposable income (*PDI*) we start with the gross income earned by persons in production, totaling $342 billion in Table 5-4. To this must be added income from government transfer payments, such as pensions, veterans' benefits, and interest on government bonds. From this total must be deducted personal taxes, chiefly income and social security levies. The calculation is as follows (totals in this tabulation and other similar ones rounded to the nearest billion):

Gross personal income (Table 5-4)	$342
(+) Transfer payments	31
(−) Personal taxes	58
(=) Personal disposable income	$316

Business disposable income is simply equal to the gross income retained in depreciation and undistributed profits, shown as $44 billion in Table 5-4.

The portion of gross income not accounted for by personal and business disposable incomes went to the government as net government revenue (*NGR*), which equals taxes minus transfer payments. Using data from the previous tables, we can calculate *NGR* as follows:

Business taxes (Table 5-4)	$ 56
Personal taxes	58
Total taxes	$114
(−) Transfer payments	31
(=) Net government revenue	$ 82

Finally, if we add up the two categories of disposable income plus net government revenue, the total is equal to *GNP:*

Personal disposable income	$316
Business disposable income	44
Net government revenue	82
Gross national product	$442

We have now traced the circular flow of gross income back to its origins. We started with the expenditures of consumers, business, and government, and we end with the disposable incomes or net revenue flowing to each of these sectors. Our data demonstrate a very important principle—that expenditures for goods and services create an equal volume of spendable incomes. This equality arises from the definition of terms involved. In particular, income is measured when it accrues, rather than when it is actually paid. This eliminates disparities between expenditures and incomes which arise from the usual time lag between the receipt of funds by business and the payment of wages and other incomes. We shall return to this matter subsequently.

In equation form, our *GNP* relations look like this:

$$GNP = C + I + G = \begin{bmatrix} \text{value} \\ \text{added} \\ \text{by all} \\ \text{pro-} \\ \text{ducers} \end{bmatrix} = \begin{bmatrix} \text{gross} \\ \text{in-} \\ \text{comes} \\ \text{accru-} \\ \text{ing} \end{bmatrix} = PDI + BDI + NGR$$

Actually, the intermediate stages of this equation are not of direct concern. Our subsequent discussion will concentrate on the basic equality between expenditures for current output and the disposable incomes of persons, business, and government. Furthermore, it is useful to stress that, in the aggregate, it is the expenditures which determine the income. Although income accrues simultaneously with expenditure, the expenditure has *logical* priority. Thus,

$$C + I + G \overset{\rightarrow}{=} PDI + BDI + NGR$$

The arrow reminds us that we have a flow relationship, not merely an arithmetic equality.

Sector Behavior—Who Gets the Income? The preceding equation contains on both sides terms relating to the three major sectors of the economy—consumers, business, and government. To explain the behavior of their expenditures, it is useful to give attention to the factors which determine the division of income among them. Logically, the government takes its share of total income first, since its decisions over taxation and expenditure have an element of compulsion which the others lack. Of the remaining incomes, business firms have considerable latitude in deciding how much of their profits to retain within the firm. After government and business have taken their shares, the remainder goes to personal disposable income as a residual. Thus *PDI* depends on total *GNP* expenditure, on government tax policy, and on business decisions to retain income.

Business disposable income has been a stable proportion of gross income, largely because of the stability of depreciation allowances. In the 1950s *BDI* consistently accounted for about 10 per cent of *GNP*. When tax rates are at a given level, the proportion of *GNP* going to the government is also relatively constant. If *BDI* and *NGR* take relatively constant proportions of *GNP*, then of course *PDI* will also take about the same fraction of *GNP* from year to year. For analytical purposes, we will generally assume that the proportional division of gross income among the three sectors is stable over time, except when changes in tax rates occur.

Sector Behavior—Deficits and Surpluses. While the total of *GNP* expenditures for current output equals the total of disposable incomes and *NGR*, for the individual sectors income and expenditure are not equal. From various data already presented, we find the following:

Sector	*Disposable income*	*Expenditure*	*Surplus or deficit*
Consumers	$316	$293	+$23
Business	44	55	− 11
Government	82	93	− 11
Total	$442	$442	0

The consumer sector showed a surplus, which was approximately matched by deficits in the business and government sectors (allowing for rounding and some minor items omitted). National-income data include housing in the business sector. It should be clear that for the economy as a whole, the deficits and surpluses must balance out, since the gross income of all sectors equals the expenditure of all sectors.

These relationships are also expressed in terms of saving and investment. For the private sectors, saving is defined in national-income accounts as the difference between disposable income and consumption. Personal saving is therefore the same as the surplus shown above. Business firms do not spend for consumption, so all business disposable income goes into business saving. For completeness, a category of government "saving" is sometimes included, defined as net government revenue minus government purchases of goods and services. In the preceding table, this would be a negative figure corresponding to the government deficit. Taking all three sectors in combination, we obtain the following:

Personal saving	$23
Business saving	44
Government "saving"	−11
Total saving	$55

Total saving, derived in this manner, is equal to total investment. This, like so many other national-income relationships, follows necessarily from the definition of terms. The saving table is merely a rearrangement of the data in the surplus-deficit table, as the student can verify.

This equality between saving and investment is very useful to the statistician, but it can be a source of great confusion when we attempt to explain the behavior of total expenditures. "Saving" here means income not spent on consumption. Thus it includes direct purchases of capital goods and repayment of debts, as well as increased holdings of financial assets. Consequently, "saving" in this national-income sense is more inclusive than "financial saving."

The time relationship may also be confusing. The measure of saving used by national-income accounts is sometimes called "ex post saving," meaning that it is determined by looking back over a period of time which is completed and deducting the consumption of the period from the income of the same period. For purposes of explanation, however, it is sometimes more useful to use a different concept of saving, one that reflects the amount people intend or plan to save out of a given income. This is called saving "ex ante," since it is determined by looking ahead from income to subsequent saving and consumption. This may differ from saving ex post for several reasons. One is that the income measured by national-income data is income accruing, some of which may not actually have been paid out yet. A wage-earner's wage is accruing every day he works, but he doesn't get it until the end of the pay period. It may be misleading to assume that his saving and spending this week represent his reaction to the income he will receive when the week is over. Furthermore, when people's incomes change, their reactions to the change may take a while to be completed, so that there is a time lag between the actual payment of income and the development of a desired saving-consumption pattern. We shall make use of this concept of ex ante saving when we attempt to explain spending behavior.

Income and Expenditure. Discussion of surpluses and deficits for economic sectors implies that the "normal" state of affairs is for each transactor to spend an amount about equal to his income. There are certainly a large number of households, businesses, and government units for which this is true. Most of them are unable to spend very much more than their incomes and unwilling to spend much less.

For any individual transactor or sector, there are three possible sources of funds for spending. Spending can be financed out of income, out of borrowing or similar external financing, or by drawing on cash or other assets accumulated in the past. This can be expressed in the following equation:

$$\text{Income} + \text{borrowing} = \text{spending} + \left[\begin{array}{c}\text{increased cash and other}\\ \text{financial assets}\end{array}\right]$$

Of course, where net repayment of debts or decreased holding of financial assets occurs, the relevant items would have minus signs.

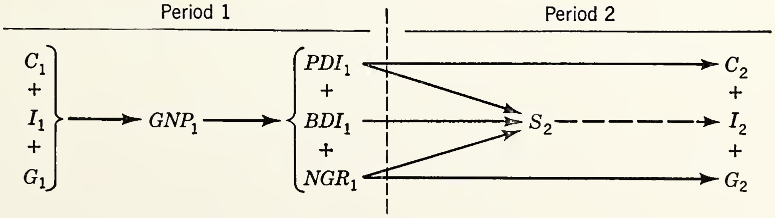
From this equation, it is clear why most transactors cannot spend much more than their income. Their access to credit is limited, and they do not have a large amount of assets accumulated. On the other hand, most of them have incomes which are not excessive in relation to their desires to buy current output. Consequently they spend most of what they earn.

Expenditure behavior can usefully be considered to reflect the interplay of two forces—the desire to spend and the ability to do so. The latter in turn depends on income, existing assets, and the availability of credit. Or we can rearrange things slightly and say that the level of spending depends on the available amount of income and credit and on the relative strength of the desire to spend, the desire to accumulate cash and other financial assets, and the desire to avoid the costs of borrowing.

Here are the elements of a theory of expenditure behavior which we shall develop in the chapters which follow. Three factors emerging from our discussion so far will be stressed:

1. The tendency for changes in income to produce similar changes in expenditure, particularly for consumers
2. The way in which desires to save and to borrow influence and are influenced by interest rates and credit conditions
3. The relationship among the quantity of money in existence, the public's desire to hold cash balances, and the cost and terms of credit

GNP as a Flow over Time. Although *GNP* data from the national-income accounts are accrual data in which expenditure and income receipt occur simultaneously, it is useful for analytical purposes to think of the process as unfolding over time. This gives us a better understanding of how variations in *GNP* spending occur. We shall retain the notion that a given volume of *GNP* expenditures creates an equal amount of income at the same time. However, let us suppose that it takes a while for this income to be actually paid and for people's spending to adjust to it. Expenditures in time period 1 become income in the same period, but that income is spent in period 2. The process can be depicted in this flow chart:



In this chart, the solid lines represent points of flow where equality necessarily holds. Thus all *GNP* expenditures pass into disposable incomes or *NGR*, all *PDI* goes into consumption or saving, all *BDI* goes into saving, and all *NGR* goes into government purchases or saving (if we count a government surplus or deficit as positive or negative saving). But the saving shown here is not the ex post saving we encountered before. It is saving ex ante, representing the amount people want to save out of the income of period 1, and is the difference between the income of period 1 and the expenditure of period 2. There is no necessity for it to be equal to investment. That is why we have drawn only a broken line between S_2 and I_2. The amount people decide to save out of the income of period 1 need not be equal to the amount of investment which will be made in period 2.

This possibility of divergence is in accord with our common-sense notions of finance. Suppose people have a great urge to save by hoarding currency in their mattresses. As trade falls off, businesses cut their expenditures for capital goods. Saving is up, investment down. Result: *GNP* spending in period 2 falls below period 1. In the next period, everyone takes the money out of his mattress and spends it. The delighted businessmen buy more capital goods. Saving is down, investment up, and *GNP* goes up. Saving and investment might also diverge because of the net creation or destruction of money by the government.

The saving-investment relation is the crucial area for changes in the level of *GNP*. Here is the "gap" in the circular flow. Much saving passes out through the gap into the financial circulation, while much investment is financed by credit flowing back through the gap. How the two flows relate to each other may depend in part on what is going on in the financial circulation.

THE FINANCIAL CIRCULATION

General Character. The main money circuit derives its structure from the flow of resources from households to producers, and the flow of output from producers to households. The financial circulation, by contrast, derives its structure from the flow of funds from savers to borrowers. However, a large part of the financial circulation consists of turnover transactions which are related only marginally to saving or to spending on credit.

The financial circulation is the domain of financial institutions—commercial banks, savings banks, savings and loan associations, insurance companies, brokers, and many others. Most of the financial saving performed by households, business, and government pours funds into these institutions, and most of the spending on credit by the nonfinancial sectors draws funds from these institutions. These institutions perform other useful services, such as furnishing the bookkeeping and transfer facilities which make checking deposits a valuable type of money, safeguarding of savings, and insuring persons and property. Here, however, we are concerned merely with the flow of funds through the financial sector, as it affects the level of expenditures in the main money circuit.

While the main money circuit involves payments for goods and services, the financial circulation involves payments for financial assets. A large volume of these consists of specialized claims against financial intermediaries—checking deposits, savings deposits and shares, insurance, and pension rights. With the exception of checking deposits, these assets are largely held by households and are not directly transferable. The other financial assets are the "primary securities" issued chiefly by nonfinancial deficit spenders (although some are issued by financial institutions).[5] Here are included corporate stocks and bonds, mortgages, government securities, and promissory notes of all descriptions. Most of the assets of financial intermediaries consist of primary securities, and they hold a large portion of the total amount in existence.

Within the category of primary securities, one can distinguish between those which are actively transferred and traded and those which are not. This distinction is a matter of degree. At one extreme are the securities of the government and of large corporations, which are actively traded in a large, impersonal market. At the other end are promissory notes of small businesses or individuals, which generally remain with the original lender.

Within the area of active trading, a distinction is commonly drawn between the "money market" and the "capital market." Money-market transactions are generally conducted in financial media with very short maturities. The transactions are usually undertaken to adjust the composition of someone's liquid assets, rather than to obtain funds to buy current output. Large nonfinancial corporations need such large holdings of liquid assets that it is worth their while to keep some of their funds in interest-bearing form. In the money market, they can buy short-term government securities with perhaps only a few days to run. Some firms may engage in such operations almost every day, buying securities when cash piles up, selling them when cash needs rise. Commercial banks also deal actively and use the money market as a means of adjusting to variations in their reserves. Such adjustments may involve government securities or may take the form of borrowing or lending "Federal funds." In such transactions, banks or other firms with funds representing reserve deposits at the Federal Reserve lend them to others on a day-to-day basis.

The capital market involves mostly stocks and bonds—securities of long or indefinite maturity. Issuance of such securities is commonly initiated to finance purchases of current output. However, the bulk of capital-market transactions consists of transfers of existing securities—chiefly stocks. The importance of such transactions is that they influence the terms on which new security issues can be sold and thus may have an effect on *GNP* spending.

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[5] John G. Gurley and Edward S. Shaw, "Financial Intermediaries and the Saving-Investment Process," *Journal of Finance,* May, 1956.

The division of markets is one of degree, and they tend to shade into each other. Under certain conditions, money-market adjustments will be made by trading in bonds or stocks. Conditions in the money market are not likely to have much direct effect on *GNP*, but they do affect the state of affairs in the capital market, which may in turn cause changes in *GNP*. These relationships arise chiefly out of the behavior of interest rates.

Interest Rates—Savings Assets and Loans. If you buy a government savings bond, the interest you will receive is specified on the bond. The government cannot legally pay you less, and you cannot effectively demand more. Interest on a savings account does not represent a legally binding obligation of this sort, but in practice the pressure on banks to maintain their past rates amounts almost to the same thing. Under some circumstances, the government or the banks might decide to pay higher rates, but such changes are few and far between. Ordinarily years elapse between changes in the interest paid by individual banks or the government.

A second class of rates consists of the negotiated rates involved in loans by banks or other lenders. Unlike the rates paid on savings, which are available to anyone on equal terms, the rates charged on loans need not be the same for all borrowers, and there is no guarantee that all who want to borrow will be accommodated. Lenders can charge higher rates for some borrowers than for others, depending on such factors as risk, cost of making the loan, and competition with other lenders. However, to save trouble, most lenders are likely to have a set of a few rates for the main categories of borrowers. For any given borrower, once he has negotiated the loan, the interest charge is set; but lenders may alter from time to time their charges on new loans, subject to legal maximum limits imposed in some areas. Such changes occur much more frequently than changes in rates on savings—perhaps two or three times a year. Among leading banks, changes are usually signaled by altering the "prime rate" charged large low-risk borrowers. Rates to other borrowers usually change in the same direction, though not necessarily by the same amount.

Yields on Marketable Securities. Quite a different state of affairs exists when we consider the interest paid on marketable debt securities, such as bonds. Although bonds carry a specific interest rate on their face, which determines the dollar amount of interest they will pay, it is also true that, if an investor buys or sells a bond at a price other than par, the rate of return he will receive will not be equal to the coupon rate specified on the bond. What he gets is called the "yield," the ratio between the expected money return (in interest and principal) and the actual money cost of the bond. The yield is ordinarily calculated to the maturity date.

When a bond is newly issued or is selling at its redemption value, it is easy to calculate the yield. For instance, if a bond paying $40 a year interest and redeemable for $1,000 is now selling for $1,000, it will yield its purchaser 4 per cent. But suppose this bond is not selling at par. Let us assume that it can be purchased for $900 and matures in 10 years. The current purchaser will still receive $40 in interest but, in addition, at the end of 10 years will receive a capital gain of $100, which is the excess of redemption value over purchase price. This capital gain is equal to an average of $10 a year additional income, so that the average annual income is really about $50. This is the return on an investment of only $900 and comes to about 5.6 per cent. The decline in the market price of this bond raised its yield in two ways—by increasing the total money income and by reducing the original capital investment required to obtain it.

The method of estimating yield which we used here is not quite accurate in its treatment of the capital gain, for $100 to be received 10 years hence is not quite as valuable as $10 a year. Accurate calculation of bond yields requires the use of a compound discount formula, in which the income of each time period is weighted inversely to its distance in the future. The general formula relating the yield r to the price P and income M of a bond is

$$P = \frac{M_1}{1 + r} + \frac{M_2}{(1 + r)^2} + \cdots + \frac{M_n}{(1 + r)^n}$$

In this, the subscripts to M represent the successive time periods. In our example above, M_1, M_2, . . . would represent the annual interest of $40 a year, while M_n ($n = 10$) would be $1,050, the interest and redemption value in the tenth year. Solving the equation indicates a true yield of about 5.4 per cent. This type of equation cannot easily be solved for r except through the use of logarithms, which change the exponential values into linear ones. However, the short-cut method which we used first is accurate enough for illustrative purposes.

Let us see what happens when a bond sells above its maturity value. Suppose a bond which pays $50 a year and which will be redeemed in 5 years for $1,000 is selling for $1,100. What is its yield? Although the bond pays $50 interest each year, if held to maturity it will decline $100 in value, an average loss of $20 a year. Thus the average net return is only $30 a year on an investment of $1,100. The short-cut calculation suggests a yield of 2.73 per cent. Working out the answer with logarithms indicates the true value is 2.82 per cent. This difference shows how the short cut overweights the capital loss.

There is a limiting case of the complex discount formula which takes a much simpler form. This is the case of a perpetual bond which pays the same money income each year forever and is never redeemed. For such a bond, the formula reduces to $P = M/r$. If a perpetual bond paying $50 a year sells for $1,000, its yield is 5 per cent; if it sells for $500, its yield is 10 per cent, etc. The calculation is much simpler than with redeemable bonds, but the underlying general theory is the same.

Our examples demonstrate an important conclusion—the yield of any given security, issued in the past, varies inversely with its current market price. Since the interest *payments* on existing bonds are fixed, it is through variations in their market prices that their yields can vary.

At any given time in the market for bonds, there will be a definite relation between the yields on different bonds. This relation comes about through the general workings of supply and demand, particularly through an operation called "arbitrage." This means buying something where (or when) it is cheap and selling it where (or when) it is expensive. Arbitrage tends to create a situation where bonds of similar risk and maturity will sell at prices which give them all about the same percentage yield at any one time. This common rate of yield is called the "market rate of interest." To see how this operates, suppose an investor holds a government bond paying $30 interest, redeemable in 10 years for $1,000 and currently selling for $1,000. The investor discovers that he can buy for $1,000 another government bond of the same maturity and redemption value, but paying $40 interest a year. Obviously this situation cannot last. The investor will sell his $30 bond and use the proceeds to buy the $40 bond. And so will everyone else, until the market value of the $40 bond rises, that of the $30 bond falls, and eventually their prices reach a point where the percentage yields of the two are the same.

Just as the yield of an individual bond can be calculated from its money income and market price, so also can we determine what a bond will sell for if we know its money-income payment and the current market rate of interest for similar bonds. For instance, if the market rate of interest is 4 per cent, a perpetual bond paying $20 a year would sell for about $500. We can use the same formula as before, except that we now know r and solve for P. No matter what the money income from a bond may be, its market price will adjust to such a level that its yield equals the market rate of interest for bonds of similar risk and maturity.

Changes in bond prices will, accordingly, affect all bonds of similar risk and maturity in similar fashion—arbitrage will tend to make them move up or down together. Such price changes will be equivalent to changes in the market rate of interest. A general rise in the prices of existing bonds is equivalent to a reduction in the market rate of interest, while a price reduction raises the interest rate. An increase in the market rate of interest implies a drop in the prices of bonds, and vice versa.

The Structure of Interest Rates. The yields of different kinds of bonds are not all the same at any one time. Yields differ in part because of differences in the credit standing of borrowers. The greater the risk that interest and/or principal may not be paid promptly, the higher the yield needed to get people to buy the bonds. This explains why United States government securities have lower yields than those of corporations. Other variations arise from peculiar features of individual bond issues. Interest on bonds of state and local governments is exempt from Federal income tax, with the result that such bonds can be sold to wealthy investors at low yields. Divergence among interest rates also stems from differences in the length of time to maturity.

The pattern of existing interest rates will be influenced by people's expectations as to what the rates will be in the future. For instance, during the nineteenth century, people expected (rightly) that interest rates would show a downward trend. Investors preferred to buy long-term securities, while borrowers preferred to issue short terms. Consequently, long-term rates were often below short rates. On the other hand, if people expect interest rates to rise, investors will prefer to put their funds into short maturities, so they can reinvest them promptly when higher rates appear. They will hesitate to tie up their funds in current long terms for fear of being "locked in" when rates rise and their old bonds fall in price. But borrowers will want long-term funds, to protect themselves against having to pay expected higher rates. Therefore long-term rates will be higher, as they have been for most of the last twenty-five years.

Although there is no such thing as "the" rate of interest, equal for all loans and bonds, the various yields on different securities do tend to move up and down together in response to the general currents of the economy. An increase in yields on government securities, for instance, will probably set up a chain reaction which will tend to pull up yields on other types of securities as well. The constant shifting around by investors seeking high yields and by borrowers seeking low payments links together the various sectors of the capital market.

The pattern of interest rates and yields in recent years is shown in Figure 5-1, which illustrates how rates vary with risk and maturity, and how the different categories rise and fall together.

Interest Rates and GNP. The pattern of interest rates and security prices interacts with the flow of payments in the main money circuit. Variations in desire to save or borrow will affect interest rates, which will in turn react upon saving and borrowing. Interest rates are determined by many of the same forces which determine *GNP*, and our analysis in the following chapters will develop a theory of how both are determined. Here we shall merely call attention to the manner in which interest rates and credit conditions affect the main money circuit.

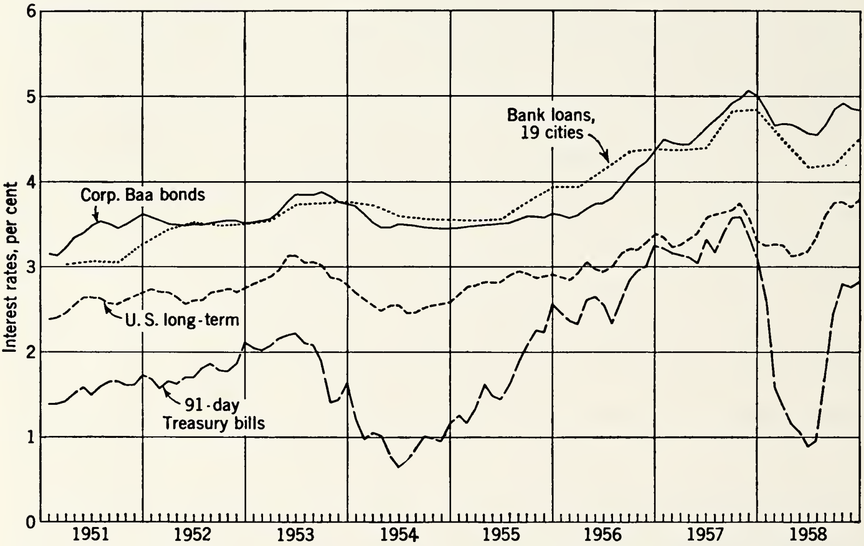


Fig. 5-1. Interest rates in the United States, 1951–1958. Bank loan figures are quarterly only. (*Federal Reserve Bulletin.*)

1. Interest rates and security prices affect people's willingness to acquire and hold earning financial assets instead of buying current output or holding idle cash.

2. Interest rates and security prices determine the cost of borrowing and influence willingness to borrow to buy current output.

3. Credit conditions determine the *amount* of funds prospective borrowers are *able* to obtain.

4. Interest rates influence the distribution of income between creditors and debtors. This is not very important economically, but its political repercussions are substantial.

Role of Commercial Banks. The effects of variations in bank credit show up in the flow of funds into and out of the "gap." Suppose banks are contracting credit. As loans are repaid, the funds are not lent out again; instead, demand deposits are allowed to decline. Loan repayment is a category of financial saving which carries funds out through the gap. There they are destroyed. As a consequence, the flow of funds back into the main circuit falls short, and *GNP* drops. If the banks are expanding, however, the opposite condition occurs. As the banks create demand deposits, the new money comes into the main circuit as a net increase. No previous flow of saving was necessary to allow the banks to expand, if they had the excess reserves needed; hence *GNP* is increased.

Here of course is also the area in which monetary policy impinges upon *GNP*. Federal Reserve actions may influence the degree to which the banks can expand or contract loans. They may also influence the amount of money floating through the financial circulation, the prices of government securities, and the interest rates ruling there. Federal Reserve policies, however, do not enter into the behavior of the main money circuit directly. Treasury fiscal policy, by contrast, does lie within the main money flow. The Treasury can increase the total expenditure flow by spending more, relative to tax receipts. It can reduce the flow (or prevent it from rising) by taxing more and spending less.

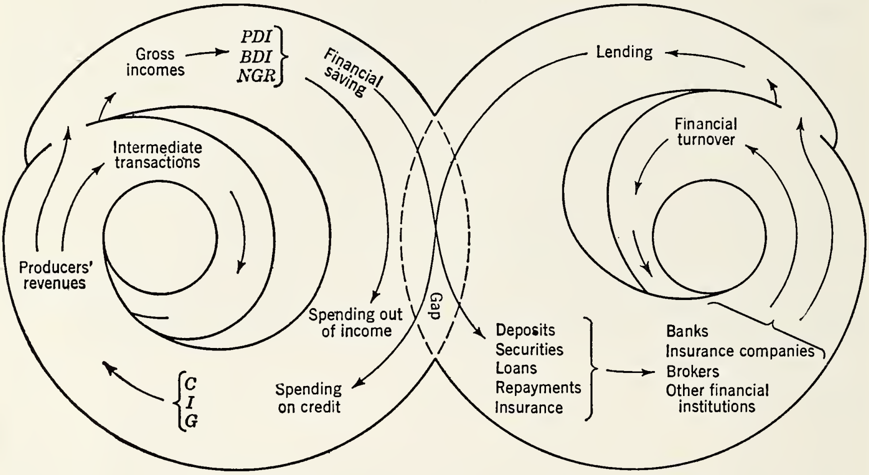
SUMMARY

The focal point in analysis of the money economy is the volume of expenditures for currently produced goods and services, for this volume bears substantially on economic welfare through its influence on output, employment, and prices. This expenditure level and the resulting flow of income are measured by gross national product categories. *In toto,* these make up the main money circuit of incomes and expenditures. The important conclusions of *GNP* accounting are, first, that *GNP* expenditures (consumption, investment, and government purchases) are equal to (and help determine) the value of output; second, *GNP* expenditures give rise to an equal amount of disposable income for persons, business, and government.

Changes in *GNP* over time arise because saving (ex ante) diverges from investment. If saving is higher, *GNP* will fall. More funds pour out through the gap than are brought back in. If investment exceeds saving, *GNP* will rise.

However, a large portion of money payments occurs outside the main circuit, in the financial circulation. The two areas overlap in the area we have called the "gap" in the main circuit—the area between saving and investment. Saving, unless used directly for purchase of capital goods or held in idle cash, flows into financial assets or debt repayment. This flow pours funds into the financial circulation, from which they may be withdrawn to finance investment spending. The flow of funds in the financial circulation determines interest rates and credit conditions. Market rates of interest on outstanding fixed-income securities vary inversely with changes in the market prices of the securities.

Most transactions in the financial circulation are turnover transactions not directly involved in the saving-investment flow. However, these may affect saving and investment by influencing interest rates, security prices, and the availability of credit. The structure of the main circuit and financial circulation is impressionistically depicted by Figure 5-2.


Gross incomes
PDI
BDI
NGR
Financial saving
Intermediate transactions
Producers' revenues
Spending out of income
Gap
Spending on credit
C
I
G
Lending
Financial turnover
Deposits
Securities
Loans
Repayments
Insurance
Banks
Insurance companies
Brokers
Other financial institutions

Main money circuit Financial circulation

FIG. 5-2. The money economy.

QUESTIONS FOR STUDY

1. "Since *GNP* is equal to disposable incomes plus taxes minus government transfer payments, an increase in taxes will raise *GNP*." Discuss.

2. What is the difference between the money market and the capital market? What does the money market have to do with the operations of commercial banks?

3. How does saving ex post differ from saving ex ante? Why is the distinction important?

4. Suppose the flow of *GNP* into disposable incomes is rigidly constant, so that 70 per cent always goes to consumers, 20 per cent to net government revenue, and 10 per cent to business. Suppose in addition that each sector spends during any time period a rigidly constant percentage of the income received in the previous period. If consumers spend 90 per cent of their income, business firms 160 per cent, and government 120 per cent, what will

happen to *GNP* over time? What financial arrangements may be necessary to make this result possible?

5. Define the following as used in *GNP* accounting:
   a. Consumption
   b. Investment
   c. Transfer payment
   d. Saving
   e. Disposable income
   f. Capital consumption allowances

6. In 1958, the United States exported more than $20 billion worth of output, but *GNP*, supposedly the value of output, showed only about $1 billion of "net" exports. Why?

7. Some financial transactions are closely related to the flow of *GNP* incomes and expenditures, and some are not. Explain the distinction.

8. Suppose a government bond paying $50 every December matures in December, 1964, for $2,500. How much will it sell for in January, 1962, if the market rate of interest is 4 per cent? If it sells for $2,200, what is the market rate of interest?

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CHAPTER 6

INTRODUCTION TO MONETARY THEORY

WHAT IT IS ABOUT

"If I had more money, I would be better off. Therefore if everybody had more money, we would all be better off."

"Money is valuable not for itself, but for what it will buy. Increasing the quantity of money will not increase the quantity of things available to purchase. Therefore increasing the quantity of money will not make the community as a whole any better off than before."

The two statements just quoted are monetary theories. Probably most of us have accepted one or the other as true at one time or another. They contradict each other flatly, and neither can be accepted as correct under all circumstances; but each contains an element of truth. Each has the merit, moreover, of getting right to the point. Each attempts to determine the relationship between the quantity of money and the public's economic welfare. This is what monetary theory is about. Unfortunately for simplicity, we must abandon such cheerful dogmatism as these statements embody. An adequate monetary theory must rest on some conception of economic welfare which can be expressed in terms of objective economic magnitudes. It must then trace out the way in which the quantity of money affects these magnitudes, with attention both to the end result and to the process by which the result comes about.

Earlier we saw that the economic welfare of a society depends largely on the quantity, distribution, and rate of growth of production of desired goods and services, and on the stability of employment and prices. The productive potential of an economic system depends on the resources available and on the effectiveness with which they are used through technology and organization. Money as an institution plays a vital role in facilitating the organization of production and distribution through the price system.

In the short run, however, production, employment, and prices depend on the rate of money expenditures for goods and services. In a capitalistic economy, where economic activities are directed by the search for profits and high incomes, entrepreneurs' decisions about production are strongly influenced by the current and prospective demand for their products. If the total expenditure for goods and services is high, entrepreneurs will put to use the productive resources available in the country. Production and employment will be high. If expenditures are too high, price inflation may cause social tensions and disrupt distribution and even production. If expenditures are too low, firms will not employ all the productive resources available. People who want jobs will be unable to find them, even while output falls far short of meeting consumer desires.

Thus the volume of spending for current output (*GNP*) is the central concept for monetary theory. In the previous chapter, we examined the structure of the expenditure-transactions flow of the economy. Now we must move in both directions from this central concept. First, we must deal at greater length with the consequences of variations in *GNP* expenditures—their effects on output, employment, and prices, and the significance of these for economic welfare. Then we shall turn to the problem of explaining variations in *GNP* expenditure, with particular attention to the supply of money and people's desire to hold it or spend it. We take up the consequences of spending first to give perspective to the subsequent discussion of causes. Explaining variations in *GNP* becomes difficult at times, and it is desirable to know from the start just why the effort is important.

OUTPUT AND PRICES

Demand and Supply. We have noted that *GNP* is defined as the value of current output at market price. It is also a measure of the flow of expenditures to purchase that output. But what determines how much output there will be and what price level will rule? If the volume of *GNP* expenditures rises or falls, how will this effect be divided between output and prices?

From the consumer's standpoint, it often appears that business firms set their selling prices to suit themselves, and that the customers can take them or leave them. Some would go as far as to say that most businessmen will charge the highest prices they can get. However, businessmen are chiefly interested in profits. The highest price is not always the most profitable price, for the quantity of things people will buy from a seller will usually vary inversely with the prices charged. If there are several independent sources of supply, the ability of any one seller to charge a high price may be very limited, since customers will quickly switch to his competitors. If monopoly or collusion exists, the customers may not have this option. Even then they may stop buying if the price gets too high, because they find some other product as a substitute or do without the product altogether.

Competition from other firms and other products thus helps to keep product prices down. The lower limits to prices are set by the costs of production. No firm can continue to operate very long if its selling prices consistently fall below average costs. Costs are incurred in buying productive resources or intermediate products and are also influenced by competition. Individual firms will be obliged to match or beat the going prices and wage rates if they are to obtain materials and labor. Producers' costs will depend on the prices determined in the markets for resources and for intermediate products. These prices will be determined by the quantity of resources which can be drawn upon and the demand for them. The demand for resources, however, is a derived demand which tends to move in response to the demand for finished products by consumers and other buyers.

Relation to Unemployment. In any market, a rise in demand can be absorbed without an increase in price if buyers can obtain increased quantities at the existing price. Such a situation exists in the market for labor and capital goods during a period of depression and unemployment, when men and machines are idle. If the demand for output rises, firms can hire more workers at the going wage rate and can put in use idle equipment. Costs of labor and capital goods are not likely to rise much, and consequently the additional output does not entail rising costs per unit produced. By contrast, if unemployment is low, rising demand for labor and other resources will be more likely to raise production costs.

The response of product prices to changes in demand depends very much on resource unemployment also. A business firm finding the demand for its products increased will be likely to raise its selling price if its efforts to increase output cause unit costs to rise and if the higher demand makes competition less effective. Both of these conditions occur when resources in the economy are nearly fully employed. If there is extensive unemployment, the firm faced with increased demand can expand output by drawing on unemployed resources, which action will not exert much upward pressure on costs. What is more, competitors can do the same thing and may therefore be alert to take business away should the firm in question raise its price.

Ultimately the price level of both finished products and productive resources depends on the aggregate volume of money expenditure (demand) for goods and services relative to the productive capacity of the economy. Capacity depends on the available quantity of labor, capital goods, and natural resources and on technology and organization. In the short run, productive capacity remains fairly stable while expenditures vary. These variations cause both output and prices to change in the same direction. Higher demand is likely to raise both output and prices, and lower demand may reduce them both.

The impact of increased spending on output and prices will depend on the state of employment. If resources are extensively unemployed, rising demand will show up chiefly in increased output. Competition among resource owners and business firms will keep prices from rising very much. As full employment is more nearly attained, competition becomes less effective. Individual sellers may have all the business they can handle. They do not fear the loss of trade, especially since competitors may be in the same situation. Firms seeking to expand production will be bidding resources away from alternative employments, which will push up costs, and thus prices are increased. Note that the cost increase, which may seem to many firms the real cause for price increases, is itself merely an indirect reflection of high demand for finished products in general.

There is the possibility that business firms or trade unions with strongly entrenched monopoly power may exert an upward force on the price level irrespective of the level of demand. There was some evidence of this in wage and price behavior in the steel and automobile industries in the 1950s; but generally such upward influences show up when demand is fairly strong. There is considerable disagreement about the degree to which they should be considered separate and independent forces in price behavior.

The assumption that productive capacity remains constant is not literally correct. During a single year, capacity may grow by 3 or 4 per cent, as labor and capital-goods supplies increase and technical innovations increase productivity. Over longer periods, the cumulative increase becomes large indeed.

When growth is a normal condition in the economy, two important qualifications must be made in evaluating expenditure changes. First, even when the economy is close to full employment, it should be possible for *GNP* spending to rise at the same rate as productive capacity without increasing the upward pressure on prices. Second, a failure of *GNP* expenditures to rise as much as population may cause increased unemployment and even reduce real incomes per capita.

Let us suppose the rate of expenditure for goods and services declines. This decrease might tend to reduce both output and prices, but the degree depends on the magnitude of the expenditure drop and on the sectors affected. In those sectors of the economy characterized by large numbers of small firms, a decline in demand is likely to produce price reductions; but in the more concentrated oligopolistic industries, firms may hold prices constant and allow output to fall off. These firms are reluctant to engage in price competition with each other, particularly since they usually feel that price reductions will not increase sales of the industry as a whole. Their reluctance is matched by equal unwillingness of workers, unionized or not, to take pay reductions. The inflexibility of costs contributes to the inflexibility of prices. Government price supports have reduced the downward flexibility of farm prices but have not eliminated it entirely.

When *GNP* falls, the initial decline generally occurs in expenditures on durable goods produced by large firms with strong unions. These firms reduce output but not prices. If the decline spreads, prices may be reduced; but the recessions in *GNP* since World War II have not usually gone much beyond the first stage.

These principles can be illustrated with historical evidence. During 1929–1933, when *GNP* expenditures fell 46 per cent, output dropped 30 per cent and prices 23 per cent. By contrast, in each of the recent recession years 1954 and 1958, when *GNP* expenditures dipped less than 1 per cent, prices actually rose while output was reduced.

As for the effects of rising expenditures, from 1933 to 1940 *GNP* expenditures rose about 80 per cent, but because of high unemployment, output increased 63 per cent and prices only 13 per cent. A more recent illustration is found in 1955, when rising expenditures during recession raised output 8 per cent, prices only 1 per cent. But from 1955 to 1957, with less unemployment, higher spending raised output 11 per cent, prices 7 per cent.

Measuring Price-level Changes—Price Indexes. Statistically, changes in the price level are measured by index numbers, which express the average prices of one year as a percentage of those of another (base) year. If all prices changed by the same percentage, it would be an easy task to construct price indexes. But they don't, and when we try to average changes of varying magnitudes in different prices, we encounter the problem of determining the relative importance of each price—the problem of weighting.

One of the most widely publicized price indexes published by the Federal government is the consumer price index (formerly called the cost-of-living index, a term still applied to it by the public). In determining the relative importance of the items included in this index, the Bureau of Labor Statistics simply accepts the importance accorded to them by consumers. Each commodity is weighted according to how much money people spend on it.

Let us compute a simple price index to show how it is done. The following table shows some hypothetical price quotations for two separate dates and the quantities of the respective products purchased at each date.

Commodity	First Year			Second Year		
	Price	Quantity	Expenditure	Price	Quantity	Expenditure
Steak	$1.00	500	$ 500 (30%)	$0.80	1,000	$ 800 (47%)
Shirts	3.50	200	700 (40%)	4.50	100	450 (26.5%)
Gasoline	0.25	2,000	500 (30%)	0.26	1,730	450 (26.5%)
Total expenditure			$1,700 (100%)			$1,700 (100%)

For each product, the price in the second year is expressed as a percentage of that in the first. Then each of the resulting "price relatives" is weighted by the percentage of expenditures devoted to each product. Using the expenditure pattern of the first year, the computation would be

Commodity	P_2/P_1 (%)		*Weight* (%)		
Steak	80	×	30	=	2,400
Shirts	129	×	40	=	5,160
Gasoline	104	×	30	=	3,120
Totals			100		10,680

Dividing the total weights (100) into the aggregate of 10,680 gives us the price index of 106.8, which indicates a price increase of about 7 per cent from the first to the second year.

This is the way most indexes are calculated, but it is not the only possible way. For instance, we could, with ample justification, have calculated the index on the basis of the expenditure pattern of the second year. Try it. Comparing the results of the two methods illustrates very well how much the result depends on the weights given to individual products.

In interpreting changes in price indexes, it is also well to remember that individual consumption patterns differ widely. Consequently, the impact of price increases may be far from uniform. In the example just given, families who spend a large portion of their income on food may benefit from price changes on balance, while those who spend more on clothing and transportation will be adversely affected.

In constructing price indexes covering long periods of time, another difficulty arises. New products are introduced, and existing products change in quality. Often there is no "correct" way to work these changes into the price index. Since the trend has been for the nature and quality of products to improve, price indexes probably overstate the extent to which prices have risen during the last twenty-five years.

These factors should caution us against attributing to price indexes a degree of precision which, by their very nature, they cannot achieve.

Prices and the Value of Money. Much discussion in monetary theory has been devoted to the "value of money." This term is best interpreted to mean the amount of goods and services which can be purchased for a given sum. Thus the value of money will vary inversely with the prices of the things one wants to spend it on. The consumer price index is often used as a measure of such changes. A rise in the price index from 100 to 120 would indicate that the value of money had declined to 5/6 of its previous level (= 100/120).

When using the consumer price index in this manner, one should keep in mind the limitations inherent in such price indexes. Even over short periods of time, they fail to reflect the variations in tastes among individual consumers. Over long periods they are unable to allow for improvements in product quality and for the introduction of new products. There are price indexes going back more than a hundred years which might be interpreted uncritically to imply that the value of the dollar has declined greatly since, say, 1860. Actually, a person from today's world returning to 1860 would find that his dollars would buy him lots of wheat, potatoes, common labor, and other elementary goods and services, but he would be unable to purchase most of the things which are integral parts of the modern standard of living. They simply did not exist. Even in a short-period analysis, price indexes are misleading unless goods are actually freely available at the indicated prices. During World War II, price controls held down the selling prices of many products, but the value of money was reduced by the fact that shortages and rationing rendered goods unavailable in the desired quantities at those prices.

Let us emphasize that the value of money is essentially a relationship between money and the things it will buy. It is not an intrinsic property of money itself. We cannot assert that the value of money has declined unless we can show that a dollar will buy less.

SPENDING AND ECONOMIC WELFARE

Interpreting GNP data. We have seen that the total of *GNP* expenditures is equal to the value of total output at market price. For any single year, the total value of *GNP* is derived by multiplying the quantity produced of each item by its price and then adding together the resulting dollar figures. When we attempt to compare *GNP* figures for different years, however, we find that prices never remain the same. How can we determine how much of the change in *GNP* has occurred in prices and how much in real production?

We have already observed that price changes can be expressed in terms of index numbers related to some base year. We can perform a similar operation to deal with the quantity of production, but the process raises many of the same difficulties encountered in constructing price indexes.

Estimates of production for individual years are expressed in terms of dollar values, for these provide the only economically meaningful common denominator for the great variety of things produced. We could of course measure the total weight of production in tons or its physical volume in cubic yards, but these standards do not give very useful results. Using dollar values enables us to include services having no weight or volume and gives some idea of the relative economic importance of the individual components.

To compile data showing the behavior of output in different years, we use as the basic unit of quantity a "dollar's worth" of output in some base year. Then the output produced in each subsequent year is valued at the prices prevailing in the base year. The result is commonly said to represent "*GNP* in constant dollars."

The figure for *GNP* expenditures during any given year can be regarded as composed of a price index multiplied by an index of output, the latter being expressed as a quantity of output multiplied by the prices of the base year. As an example, the following data compare *GNP* for 1947 and 1957:

Year	*GNP expenditures*	*Price index*	*Output at 1947 prices*
1947	\$234 billion	100	\$234 billion
1957	\$443 billion	130	\$340 billion $\left(= \frac{443}{130} \times 100\right)$

GNP in current prices rose by about 90 per cent from 1947 to 1957, but part of this reflected the increase of 30 per cent in prices. Dividing \$443 billion by the price index, we find that output in 1947 prices was only \$340 billion, an increase of slightly under 50 per cent.

Evaluating the economic welfare significance of variations in *GNP* expenditures means, first, determining the division of effect between output and prices. Then the consequences of price change and output change need separate consideration. These effects are dealt with in the next few sections.

Prices and Economic Welfare. Prices may indirectly influence economic welfare by their effects on production. The output of individual items will obviously be influenced by their relative selling prices. It is also often asserted that the volume of total output will depend on the movement of prices. High output is expected in periods when prices are rising, whereas falling prices are associated with declining output. However, things have not always worked this way. In the prosperous late 1920s, output rose while prices were declining. In the recession year 1958, prices rose but output declined. The ambiguity arises because the price level as such does not influence production nearly as much as does the level of money expenditures. A high rate of spending usually calls forth high output and very often causes rising prices also. But both prices and output are symptoms of the same underlying cause. When price changes result from other forces, output may change in the opposite direction from prices. The divergence in the 1920s occurred because price reductions reflected cost reductions from technical improvements. Divergence might also result if prices were increased through reductions in supply caused by government restriction or private monopoly.

Thus it is not easy to isolate the influence of the price level on total output. Price changes may more often be symptoms of more fundamental determinants such as demand.

The direct influence of price changes on economic welfare comes mainly through their effects on the distribution of real incomes and wealth. Each household's real income depends heavily on its "terms of trade" with the rest of the economy—the prices it receives for what it sells in relation to the prices it pays for what it buys. For one sector of the economy—agriculture—the movement of prices paid and received is carefully computed and publicized by the government in the so-called parity index. Important effects on distribution result from changes in relative prices. During a period in which prices of consumer goods are rising, many people whose incomes are fixed in money terms will find their real incomes reduced. Incomes from such contractually fixed sources as interest, private pensions, and annuities are particularly vulnerable. Most incomes, of course, are not so literally fixed and will tend to rise in some measure, perhaps more, perhaps less than prices.

However, income distribution is not just a matter of prices received and prices paid. For workers, farmers, and businessmen it is also a question of quantities sold. The worker's actual income may vary with changes in hours worked, as well as with the hourly wage rate. Farm incomes change with farm output and productivity. For the economy as a whole, these changes in quantity sold are correlated with changes in total production and demand. Thus variations in income result in part from changes in relative prices but also from variations in production and demand. If a period of rising prices is also one of rising production, many workers will have rising real incomes even if their wage *rates* do not rise as much as the prices they pay. Since the movement of demand and prices affects production, it is hard to isolate those effects on real incomes which can be attributed to production from those resulting from price change.

Declining prices may also have somewhat complicated effects on income distribution. Recipients of contractually fixed incomes will find their real purchasing power increased—provided the incomes are paid as fixed in the contract and not defaulted. The real-income effects on the other sectors of the economy will depend on whether the price reductions reflect reduced demand or increased supply (perhaps reflecting improved technology). If demand has fallen, workers and businessmen may lose income, not so much because their "terms of trade" have deteriorated, but because the quantities they can sell have fallen. Workers may be laid off or go on short time, and changes in wage rates may have little to do with their final income changes. In agriculture, since output does not usually decline much, income changes will be closely linked to the movement of the parity index of prices received versus prices paid.

Price movements also affect the distribution of wealth, notably between debtors and creditors. Increases in prices of goods reduce the real value of assets and liabilities which have a fixed money value—bonds, insurance, and of course cash itself. Thus creditors tend to find their net worth deteriorating in real terms when commodity prices are rising, while debtors find theirs improving. However, the total effect on any household or firm will depend on the changes in real values of both assets and liabilities.

Aside from the "objective" effects of price changes on production and distribution, there may also be important subjective effects on the psychology of the public. Many people believe that "inflation lowers the value of our money and therefore makes us all worse off." If inflation entailed increases in prices without increases in money incomes, this attitude might be objectively justified; but inflation is likely to be accompanied—even caused—by increases in people's money incomes. For any household, the question is whether the increased number of dollars outweighs the decreased value of each one. For the economy as a whole, one should look at the volume of goods and services available. If a mild inflation stimulates greater production, people's real incomes may objectively be increased, not decreased, by the inflation. Subjectively, nevertheless, people may not feel this way about it. People have a way of regarding increases in their money incomes as being a long-overdue recognition of their inherent merit. They assume they would have received the higher incomes anyway, and of course the purchasing power of individual incomes would have been higher if prices had not risen. Such thinking creates an ambivalent public attitude toward inflation. On one hand, people want higher money incomes, and these may be possible only through inflation. On the other hand, they resent and oppose price increases. One of the dangers of inflation is that it may breed social tension and friction among people who feel cheated, even though their real incomes may actually have been raised by the inflation.

One must be cautious not to exaggerate the direct effects of prices on production and distribution. Our discussion indicates that the level of total spending is probably a more important influence on both production and distribution. But the influence of prices on public psychology cannot be ignored.

Output and Economic Welfare. We have seen that welfare evaluation of data showing *GNP* for different years must begin by eliminating the influence of price changes and thereby reducing the figures to a measure of changing output. A second adjustment is made necessary by the fact that our data are national aggregates. To estimate the changes in economic welfare at the individual level, we should estimate the amount of output per person. In the United States, the growth of output in the past has been accompanied by a growth in population. Thus data on aggregate output overstate the increase in the amount of goods and services available for each consumer.

It is important also to remember that *GNP* includes a considerable amount of goods and services which do not yield utility to consumers. A part of current output merely goes to replace durable goods which are wearing out. New capital goods do not raise consumer welfare directly when produced, although the owners may derive satisfaction from the possession of assets. War and defense production, necessary as they may be, do not contribute much to *economic* welfare.

Because not all output contributes equally to economic welfare, gross national product is probably inferior as a measure of welfare to some of the other national-income concepts. One which is widely used for this purpose is national income itself, measured by deducting from *GNP* the amount of capital-consumption allowances and indirect business taxes. Thus capital goods needed for replacement are excluded, as is a portion of the output going to the government; but the intangible benefit of *net* investment and of some government expenditure is retained. If one prefers a narrower concept of welfare, it can be represented by personal disposable income. *PDI* excludes all taxes and that portion of net investment financed by reinvested profits. National income seems a little too inclusive, *PDI* a little too exclusive; but either is better than *GNP* for this purpose. For comparisons over an extended time, either should be adjusted for price and population change.

Whatever measure of income and output we choose, it will not directly reflect variations in the amount of effort required to obtain that output. Over the past half century, Americans have taken a part of their rising living standards in the form of shorter working hours and more holidays and vacation time. Working conditions have improved in many occupations. Therefore increased output is only one aspect of improved living conditions.

However, while we contemplate with pleasure the increased amount of leisure people have available, we dislike unemployment! The problem is one of equity in distribution. It is as important that each person who wants a job should be able to obtain one as it is that the jobs should not be unduly burdensome. When increased output is obtained by drawing reluctant people into the labor force and working everyone overtime (as in 1943–1945), the net benefit is much less than when the increase enables involuntarily unemployed individuals to return to work.

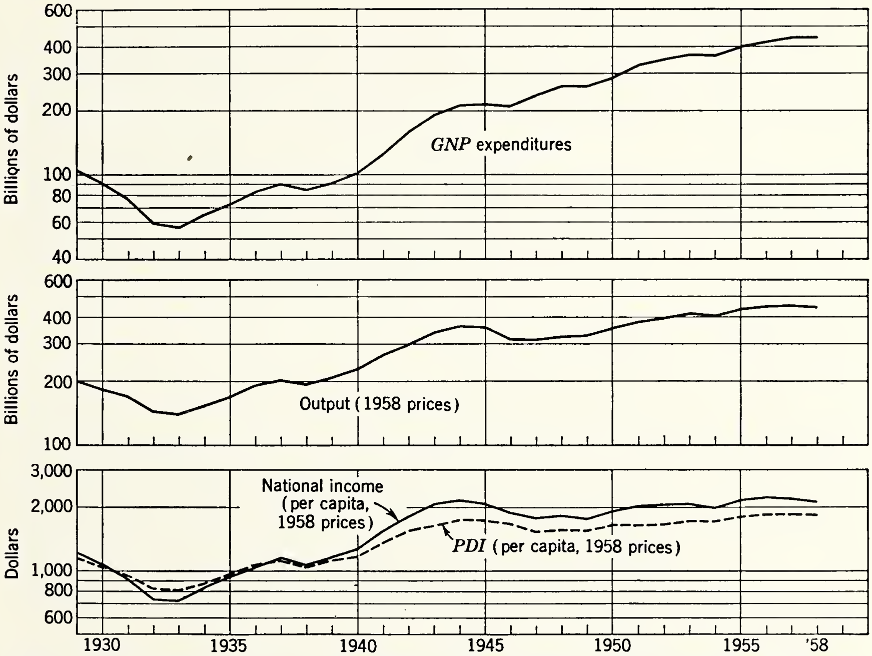

FIG. 6-1. Spending, output, and welfare, 1929–1958. (*U.S. Income and Output; Economic Report of the President; Survey of Current Business.*)

Spending and Welfare—Recent Behavior. To conclude our discussion of spending and economic welfare, it is useful to look at their relation in the recent past. Figure 6-1 shows the behavior since 1929 of *GNP* expenditures, total output, and two measures of economic welfare—national income and personal disposable income corrected for changes in prices and population.

The decline of *GNP* expenditures from 1929 to 1933 did not reduce output proportionately, since prices also fell; but welfare declined more than output, because the population was increasing. After 1933, higher spending raised output substantially, but continued population growth kept down the improvement in real income per capita until World War II. By 1940 it had barely regained the 1929 level. The restoration of full employment during the war contributed to the rapid rise of real incomes, and after the war, measures of economic welfare stood about 40 per cent above 1929 levels.

From 1945 to 1958, *GNP* expenditures just about doubled. Much of this rise merely pushed prices up, and output increased only about 30 per cent. With continued increase in population, the rise in individual living standards was even less. In 1958, real income per capita was less than 20 per cent above the 1948 level. The adjustments for inflation and population growth make the big rise of *GNP* seem less impressive. However, if total expenditures had not risen so much, real income per capita might have shown even less improvement.

THE ELEMENTS OF MONETARY THEORY

Determinants of Spending Behavior. The central problem of monetary theory is to explain variations in the level of *GNP* expenditures. Inevitably we are led to examine the spending behavior of individual sectors of the economy. Sector expenditures can be explained in terms of income, credit conditions, and psychological preferences and expectations. The main difficulty at this level of analysis is that the same behavior can be described in several different ways, depending on one's emphasis.

Explanation really becomes complicated when we try to show how changes originating in one sector of the economy react on the others. For an individual, or for a single business firm, the factors determining spending behavior are largely "given" and beyond his immediate control. But for the economy as a whole, such factors as incomes and credit conditions are dependent variables, whose behavior must be explained in the process of explaining expenditures. It is characteristic of economic analysis that everything depends on everything else, and we shall demonstrate this with a vengeance in the chapters immediately following.

Our analysis moves through two stages. In the first stage, we must see how the expenditure and saving actions of individual transactors or sectors are determined by such factors as credit conditions and income. In the second stage, we see how the expenditure and saving decisions of all sectors combine to alter the pattern of credit conditions and income.

We can illustrate these phases and the problems noted by examining sketchily the behavior of the consumer sector. It is useful to begin with the following money-flow equation (which holds for any transactor except banks and the government, which can create money):

$$\text{Income} + \text{borrowing} = \text{expenditure} + \begin{bmatrix}\text{increased}\\ \text{cash}\\ \text{holdings}\end{bmatrix} + \begin{bmatrix}\text{increased hold-}\\ \text{ings of other}\\ \text{financial assets}\end{bmatrix}$$

This is a slightly expanded version of the equation we introduced in the previous chapter. The added detail emphasizes that most sectors normally increase both their debts and their financial assets and that money is of peculiar interest in itself.

This equation directs us to the factors capable of influencing the various actions it depicts. These factors serve (with minor adjustments in terminology) to analyze any sector of the economy, but the relative importance of each is not the same for every sector.

1. *Amount of income.* In practice, this is the major influence on consumer spending. An increase of income will usually cause a proportional increase in spending, while a decrease in income will decrease spending.

2. *Interest rates and credit conditions.* These considerations influence the amount consumers are willing and able to borrow and affect their willingness to acquire income-bearing financial assets in preference to holding cash or engaging in consumption spending.

3. *Psychological tastes, preferences, and expectations.* This may be no better than a catch-all category used to explain everything which the other two leave undetermined. However, it appears that consumer preferences do not usually make large sudden shifts. Thus the relative strength of the desire to consume rather than save is comparatively stable, as we shall demonstrate when we examine data on *C/PDI*. However, there is always the chance that objective conditions may engender expectations of major forthcoming changes. The "scare buying" of 1950 when the Korean conflict broke out illustrates this.

It is well to think of consumer preferences as a series of schedules rather than absolutes. A stable preference pattern for expenditures might be one in which consumption was equal to a certain fraction of income plus a variable depending on interest rates and credit conditions. The fact that spending would change in response to income or credit changes would not imply instability in underlying preferences. Changes in spending resulting from changes in incomes or credit conditions might be considered "induced," whereas changes arising from other causes would be "autonomous."

The same considerations apply to the amount of cash balances people wish to hold. Their need for cash varies directly with their income and expenditures, and their willingness to hold it varies inversely with the interest income they can obtain on other financial assets. Thus, we need no additional explanatory factors beyond the three listed.

Now let us see how an increase in expenditures might come about. First, it might result from a rise in incomes. Second, easing of credit and reduction of interest rates might encourage people to spend more by borrowing more or by acquiring less income-bearing financial assets. Third, an increased psychological desire for consumption spending in preference to the alternative money outlets would lead to higher spending at the existing level of income and credit conditions.

The third of these causes illustrates very well the ambiguity which may arise from the use of different terminology for the same actions. We can refer to the manifestations of the shift in tastes as an increase in the propensity to consume or a decrease in the propensity to save. More specifically, the shift might involve an increase in the demand for loans, a decrease in the demand for income-bearing financial assets, and a decrease in the demand for cash balances. The increase in the desire for consumption does not tell us what the relative impact will be on borrowing, cash holdings, or acquisition of other financial assets. But we know that in the aggregate, a change in the relation between income and consumption must be matched by an equal change in the three financial categories combined.

Take another example. Suppose people become extremely pessimistic about the future and believe that income-bearing financial assets are unsafe, that commodity prices will fall, and that their money incomes are going down. Consequently they want to increase their cash holdings. We say there is an increase in the "demand for money." Efforts to hold more cash will entail shifts in the other elements of the equation. Assuming income is fixed, consumers can hold more cash by borrowing more, spending less, or reducing other financial-asset acquisition or holdings. Behavioristically, the phenomenon we described as an increase in the demand for money could also, therefore, be called an increase in the propensity to save, a decrease in the propensity to consume, an increase in the demand for loans, and a decrease in the demand for income-bearing financial assets. Of course not all categories will be affected equally, and some perhaps not at all. Consumers may seek higher cash balances by adjusting their holdings of other financial assets and leaving consumption unchanged; but they cannot attempt to hold more cash without affecting at least one other item in the equation.

Repercussions on Income and Credit Conditions. Analyzing sector spending-saving behavior is only half the task. The other half is to see how changes in sector behavior react upon the general state of incomes and credit conditions in the economy.

To illustrate how this works, it is convenient to rearrange the equation we have been using, so that it looks like this:

$$\overset{A}{[\text{Income} - \text{expenditure}]} = \overset{B}{\left[\begin{matrix}\text{increased hold-}\\ \text{ings of income-}\\ \text{bearing finan-}\\ \text{cial assets}\end{matrix} - \text{borrowing}\right]} + \overset{C}{\left[\begin{matrix}\text{increased}\\ \text{holdings}\\ \text{of cash}\end{matrix}\right]}$$

This arrangement enables us to see quickly the impact of spending-saving activities on the rest of the economy. The items in bracket *A* show the direct role of the sector in question in the behavior of the main money circuit. If the sector's expenditure rises more than its income, the effect on the main circuit is intrinsically expansionary. The flow of incomes to other transactors will therefore rise. But if spending declines in relation to income, the effect is to reduce the flow of income to others (or counteract an increase which might otherwise occur).

The items in bracket *B* represent the net amount of funds poured into or taken out of the financial circulation by this sector. The strength of these flows for all sectors combined determines interest rates and credit conditions. If households increase their willingness to acquire income-bearing financial assets or reduce their desire to borrow, this will tend to ease credit and lower interest rates. However, if consumers increase their borrowing demands and reduce their willingness to acquire income-bearing financial assets, credit will tighten and interest rates rise.

In many cases, income-expenditure and loanable-funds adjustments would occur simultaneously. Suppose there is an increase in consumer desire to hold interest-bearing assets in preference to current consumption. The direct effect on the main money circuit is contractionary. Consumers spend less; thus the flow of subsequent incomes is reduced. At the same time, consumers make more funds available to the financial circulation. Consequently credit becomes easier. This may stimulate a higher level of spending on credit.

Thus each transactor stands, as it were, with one foot in the main money circuit and one foot in the financial circulation. His operations in one area are largely inverse to those in the other. Actions that decrease the flow of funds in one are likely to increase the flow in the other.

Cash-balance Variations. Changes in the two areas are not necessarily offsetting. Possible disparity arises from variations in cash holdings, which do not directly constitute participation in either part of the flow of funds. Increased holdings of cash entail a cut in the combined flow of funds in both parts. Thus if consumers decide to cut their spending and hold more cash, the decline in the flow of main circuit payments is not compensated for by any increase in the financial circulation. A decrease in cash holdings by any sector raises the total flow of funds.

At this point, the student is likely to object. After all, most cash balances are held in the form of bank deposits. And if consumers decide to increase their holdings of checking deposits, won't this enable the banks to expand loans? This sounds plausible but turns out to be incorrect. The fallacy is easy to detect if we assume that *all* money is in the form of checking deposits. Consumers receive their incomes by check and make their expenditures by check. The amount of deposits in existence depends on bank reserves. If consumers decide to hold on to their deposits instead of spending them, it does not create any reserves for the banks, and thus they derive no lending power.

There is, in actuality, one way in which increased consumer demands for cash balances might increase bank reserves. If consumers receive their incomes in currency but hold their cash balance in checking accounts, bank reserves could be increased. However, this is implausible. People usually hold money in the same form that they use in transactions. We shall come closer to the truth if we assume that a desire to hold a larger cash balance makes no loanable funds available through the banks.

For individual transactors, cash-balance variations may be largely a residual variable which makes other things come out even. For the economy as a whole, cash balances have a unique characteristic which requires careful attention. This characteristic is that the total amount of cash available for holding is relatively fixed in supply. This is in extreme contrast with the total quantity of interest-bearing assets, the supply of which is likely to adjust fairly readily to the demand.

If the supply of money is invariable, the combined cash balances of all sectors of the economy cannot change. Efforts by one sector to hold more cash will involve reducing the amount left for the others, who may retaliate. A tug of war may develop over the existing supply. The way each sector generally tries to gain more cash to hold is to reduce its net outlays for main circuit and financial transactions. Reduced outlays by one sector mean reduced access to income and credit for the others. If they engage in similar conduct, the reductions spread throughout the economy. In the end, efforts to hold more cash may leave each sector with lower income and reduced earning assets but no more cash than before.

In practice, the supply of money is not as rigid as this implies, but variations in the supply are not permitted to happen automatically, the way the quantity of bonds or savings deposits can be expanded to meet higher demands. Government control of the supply of money, through the Federal Reserve System, is intended to adjust supply in a manner consistent with a desirable and beneficial pattern of main money circuit transactions. Increases in the demand for money which threaten the kind of deflation envisioned in the previous paragraph would probably call forth an increased supply of money, but an increased demand for cash arising from an inflationary trend in total spending would probably not be met by an increased supply.

The Analysis of Money. Cash balances furnish the link between the supply of money and expenditures. Their relationship can be analyzed in terms of supply and demand, even to the point of drawing up schedules. We shall see, for instance, that the amount of cash balances which the public desires to hold varies directly with the level of *GNP* and inversely with interest rates. There is a particular quantity of cash which the public will want to hold for any given combination of *GNP* and interest rates. If the actual quantity of money is raised above this desired amount and kept at the higher level, some sectors will have more cash than they want. The excess will flow into main circuit expenditures or into the financial circulation. Ultimately, some combination of higher *GNP* and reduced interest rates will reconcile people to holding the increased supply of money. As we shall see, similar principles can be applied to analyze any variations in demand or supply schedules.

Similar principles, but different terminology, are used in analysis which emphasizes the "velocity" of money—the rate at which it circulates through the economy. Since velocity is measured by the ratio between expenditures and the money supply, it is determined by the same factors which determine the demand for cash balances. As an illustration, if an increased demand for cash balances in face of an unchanging money supply causes people to spend less, the ratio of expenditures to money supply will fall, thereby showing a decrease in velocity.

Each of these approaches has its merits, and we shall explore both of them in the following chapters. Before getting into the differences in approach, however, we shall make a more detailed investigation into the expenditure behavior of the main sectors of the economy. The next chapter is devoted to analysis and empirical evidence bearing on consumption and investment behavior and to some of the implications of that behavior for the flow of *GNP* expenditures as a whole.

SUMMARY

This chapter has dealt with two aspects of the flow of *GNP* expenditures—consequences and determinants. Variations in *GNP* expenditures have their important consequences on production, employment, and prices. By definition, *GNP* equals the money value of current output—output multiplied by prices. Effects of rising *GNP* will depend on the degree of resource unemployment in the economy. Ordinarily, if unemployment is high, an increase in *GNP* expenditures will result in higher output, with little increase in price. As the economy approaches full employment, however, greater spending will tend increasingly to result in higher prices. Should *GNP* decline, the initial impact would probably be seen in reduced output. If the decline in spending is large and affects the whole economy, prices will also be pulled down. An increase in *GNP* expenditure will improve economic welfare more if it leads to higher output than if prices rise, although not all output contributes equally to welfare. Higher employment accompanying higher output may make an independent addition to welfare. Price changes affect the distribution of real incomes and wealth and may also set off psychological reactions out of proportion to the "real" underlying changes. Although the chief influence is expenditures, price relations may also exercise an influence on output.

Variations in expenditures can best be explained in terms of the behavior of individual sectors of the economy. For each sector, the following equation is useful:

$$\text{Expenditure} = \text{income} + \text{borrowing} - \begin{bmatrix} \text{net} \\ \text{increase} \\ \text{in cash} \\ \text{holdings} \end{bmatrix} - \begin{bmatrix} \text{net increase in} \\ \text{holdings of} \\ \text{other financial} \\ \text{assets} \end{bmatrix}$$

The major factors influencing expenditures will be income, interest rates and credit conditions, and psychological tastes and expectations. For individual households and firms, expenditures adjust to "given" states of the determinants; but in the aggregate, the behavior reactions of individual transactors determine the volume of incomes and the state of credit. Tracing out these two sides of the picture is the task of the next three chapters.

QUESTIONS FOR STUDY

1. What is meant by the value of money? How can changes in this value be measured over time? What are the limitations of such measurements? What is the relation between the value of money and real income?

2. Using the following information, compute an index of price change (*a*) using first-period weights and (*b*) using second-period weights. Explain the logic of weighting. Use the index based on first-period weights to compute (*c*) the change in the value of money from 1950 to 1955.

Product	1950		1955	
	Price	Quantity	Price	Quantity
Milk (qt)	$ 0.20	5,000	$ 0.24	5,000
Man's suit (ea.)	45.00	100	50.00	76
TV set (ea.)	200.00	10	175.00	14

3. "Between 1929 and 1958, *GNP* rose from $104 billion to $442 billion. Thus by 1958 people were economically four times as well off as in 1929." Discuss.

4. "A rise in *GNP* does not necessarily make people better off, but a decline in *GNP* almost always makes them worse off." Discuss.

SUGGESTED READINGS

"The Relationship of Prices to Economic Stability and Growth," *Compendium of Papers Submitted by Panelists,* Joint Economic Committee, United States Congress, 1958.

CHAPTER 7

CONSUMPTION, INVESTMENT, AND INCOME DETERMINATION

INTRODUCTORY

We have noted that the analysis of expenditures and related behavior consists of two phases. In the first, we observe the way in which expenditures of consumers, business firms, or government units are influenced by income, credit conditions, and other (largely psychological or subjective) determinants. The second phase involves the manner in which the actions of all transactors *determine* the incomes and credit conditions which each transactor regards as "given."

In this chapter we shall take up the first of these phases and part of the second. We shall examine the manner in which the expenditure patterns (and related behavior) of the major sectors of the economy are determined and shall show some of the implications which these patterns have for the flow of income and expenditure over time. However, we shall postpone for subsequent chapters the interactions involving credit conditions and the relation of the supply of money to the demand for it.

CONSUMPTION SPENDING

Income and Consumption. Consumer spending, like that of any other sector, can be analyzed as depending on three factors—incomes, credit conditions, and psychological tastes and expectations. But it requires only a hasty glance at the evidence to show that income is the chief determinant of consumption. Psychological factors are important as the basis for the over-all income-consumption relationship but do not cause much change in the short run. Credit conditions operate within a limited scope also, since the amounts of consumer borrowing and acquisition of earning assets are relatively small and are not very sensitive to interest rates.

The behavior record of the income-consumption relationship is shown

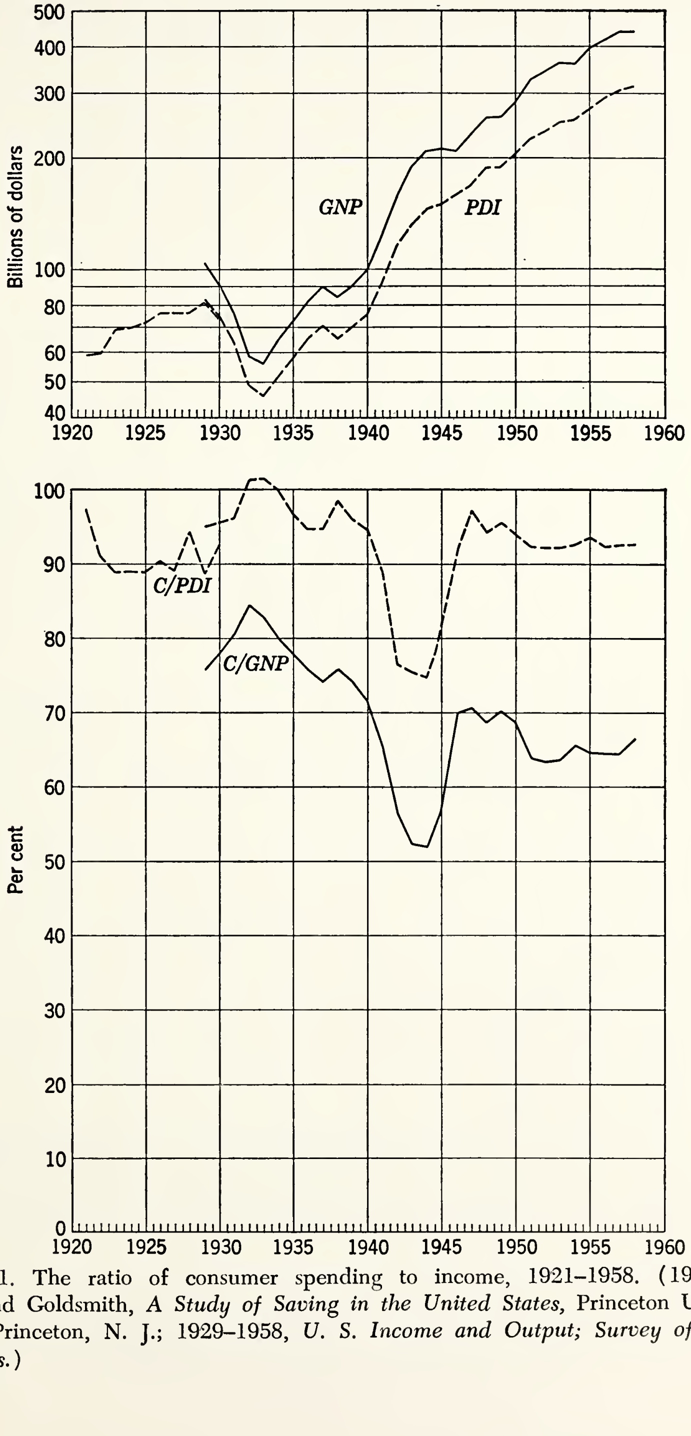

FIG. 7-1. The ratio of consumer spending to income, 1921–1958. (1921–1930, Raymond Goldsmith, *A Study of Saving in the United States,* Princeton University Press, Princeton, N. J.; 1929–1958, *U. S. Income and Output; Survey of Current Business.*)

in Figure 7-1, which charts the ratio between personal disposable income and consumption expenditures and also shows the absolute level of *PDI*.

The ratio between *C* and *PDI* follows an interesting pattern. It was stable at about 90 per cent during the prosperous 1920s, rose systematically in the years 1930–1933, when incomes were declining, and fell steadily as incomes recovered from the Depression. The drop was greatly augmented during the war years, but from 1948 through 1958, the ratio was very stable at about 93 per cent. Between 1951 and 1958 the ratio remained between 92.1 and 93.6 per cent.

The record of nearly four decades of income-consumption behavior leads us to the following conclusions. During relatively "normal" periods, in which no substantial inflation or depression exists, consumption will be a stable proportion of *PDI*. During a period of depression, when incomes are declining, consumption will be reduced but not proportionately to income, so that the ratio *C/PDI* will rise. When income is rising at a rate faster than normal, during recovery from depression or during a wartime inflation, consumption will rise but not in proportion to income, so the ratio *C/PDI* will fall. This decline was aggravated during World War II by rationing and shortages, which made it difficult for people to spend as much as they might have wished.

Figure 7-1 also shows the relation between consumption and spending and *gross* income (*GNP*). This ratio is determined by *C/PDI* and *PDI/GNP*. The latter depends on business income-retention policies and on taxation. Business disposable income has generally been stable at about 10 per cent of *GNP*. Consequently, with a given set of tax rates, *PDI/GNP* is relatively constant. Thus, when *C/PDI* is fairly stable, consumption tends to be a reasonably constant proportion of total *GNP*.

The ratio *C/GNP* also shows a similar rise and fall from 1930 to 1945. The amplitude was wider than that of *C/PDI* because of tax-rate increases after 1932, and especially after 1941. When World War II ended, *C/GNP* jumped again as taxes were cut, but it fell again in 1951, when the Korean conflict brought higher levies. A slight rise in 1954 reflected reduction of some of those taxes. From 1951 to 1958, *C/GNP* ranged between 63.3 and 66.3 per cent.

The notion of a stable income-consumption relation was given prominence in economic thought by John Maynard Keynes. He labeled this relationship the "propensity to consume" and made it a keystone of his *General Theory of Employment, Interest, and Money.*[1] Much of the analysis in this chapter and in Chapter 9 is patterned after Keynes's method of approach, although it is not intended merely as an exposition of his ideas and diverges substantially in some respects.

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[1] Keynes, who died in 1946, was one of the most influential economists of modern times. He succeeded in directing the attention of economic analysis to the behavior of total expenditures as the key to depressions and unemployment and effectively refuted the notion that prosperity and full employment were a "normal"

We are particularly concerned with the connection between changes in income and changes in consumption spending. Keynes called this the "marginal propensity to consume." Figures 7-2*a* and 7-2*b* show data on the marginal ratios of *C*/*PDI* and *C*/*GNP*, using year-to-year changes in each variable.[2]

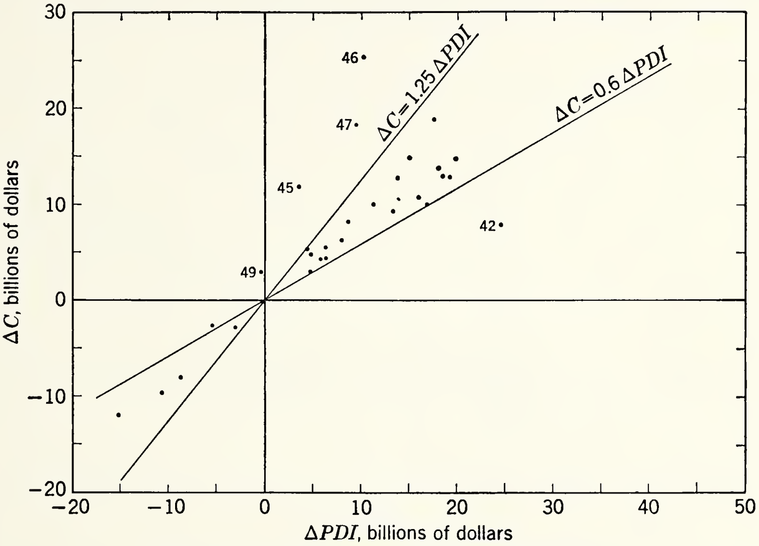

FIG. 7-2*a*. Consumption and *PDI*, 1930–1958.

In the following discussion, we shall use the symbol Δ to represent the *change* in a particular variable.

Figure 7-2*a* shows that the correspondence between changes in *PDI* and in consumption has been high. About five-sixths of the values for Δ*C* in the years 1930 through 1958 fell between 0.6Δ *PDI* and 1.25Δ *PDI*. The average of these is approximately 0.92Δ *PDI*, which we observed to

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state to which the economy would inevitably return. He became wealthy by applying economic theory to foreign-exchange speculation. Keynes was a long-time antagonist of monetary dogmatism and ideology, but in less skilled hands his doctrines became subject to equally dogmatic and ideological interpretation.

[2] To illustrate, the calculation for 1930 is as follows:

	GNP	*PDI*	*Consumption*
1929:	$104.4	$83.1	$79.0
1930:	91.1	74.4	71.0
Change:	−13.3	−8.7	−8.0

have been the average level of C/PDI in the 1950s. The points which fall outside this range are for the years during and after World War II and reflect the influence of the imposition or withdrawal of direct controls and other abnormal factors. The directional correspondence is very impressive—in only one year did income and consumption not move in the same direction.

The correspondence of changes in GNP and in consumption shown in Figure 7-2*b* is not so high, chiefly because of tax-rate variations. About two-thirds of the points for ΔC fell between $0.4\Delta\ GNP$ and $0.8\Delta\ GNP$. The average of these is $0.6\Delta\ GNP$, which is close to the average of C/GNP for the 1950s. The four years lying abnormally to the right were all years of substantial tax increases. The four "wrong-way" years in which GNP fell but consumption increased were all years of substantial tax reduction. Note the similarity in the three recession years 1949, 1954, and 1958.

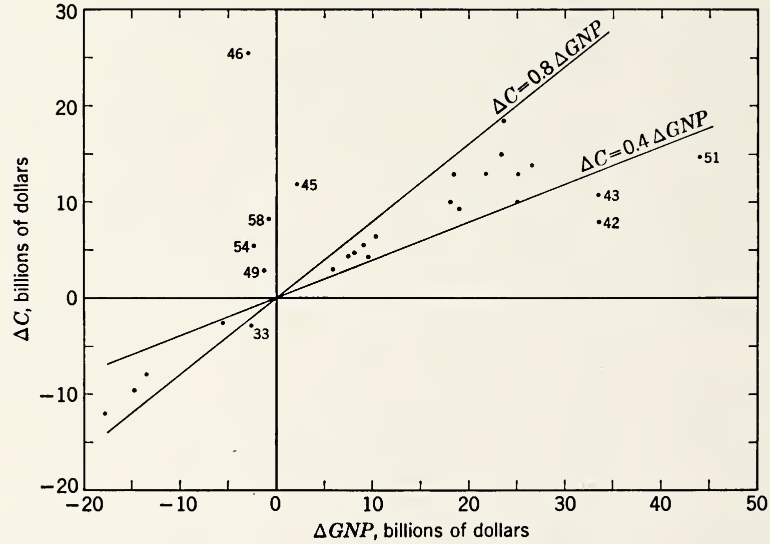

FIG. 7-2*b*. Consumption and *GNP*, 1930–1958.

In the absence of wartime abnormalities and changes in tax rates, it is clear from these data that we are justified in expecting that changes in consumption will move in the same direction as changes in PDI and GNP, and that the proportionality will be relatively stable from year to year. The experience of the 1930s and 1940s suggests that the marginal propensity to consume out of either disposable or gross income may be smaller for large income changes, since it takes consumers a while to adjust their spending patterns. So long as government policy keeps income changes within a moderate range, however, the stable proportionality shown in the 1950s may be more likely.

Interest Rates and Credit Conditions. Consumption may also be influenced by changes in interest rates and credit conditions. Low interest and easy credit make it easy to borrow and may discourage acquisition of interest-bearing assets. Tight credit and high rates may cause the opposite effects. However, the observable effects of such changes are not large. (We are not now considering housing expenditures, which will be treated under investment.) The proportion of consumer expenditure financed on credit is small. Credit is used chiefly for durable-goods purchases, which account for less than one-fifth of total consumption. In 1958 the *gross* amount of installment credit extended was about $40 billion, equal to 14 per cent of consumption, and *net* expansion of consumer credit after deducting repayments was less than $1 billion.

Much consumer credit buying is insensitive to terms of credit. Frequently consumers do not know how much interest they are paying. Since the loans are relatively short in duration, the amount of interest is often not large enough to matter. However, other credit terms may have more influence. During a period of credit stringency, higher down payments and shorter maturities (which mean higher monthly payments) will probably price some buyers of autos or appliances out of the market for a time. In addition, consumers are affected by credit "rationing." In times of stringent credit, applicants whose credit standing is doubtful may find their requests for credit turned down.

Credit conditions can be identified as a factor influencing total consumption in 1955. Automobile sales jumped from $11.3 billion in 1954 to $15.8 billion in 1955, partly in response to aggressive easing of credit terms by sellers. Down payments were cut or eliminated, and borrowers were given more time in which to pay. This accounts in part for the fact that $\Delta C/\Delta PDI$ was 108 per cent in 1955.

Interest rates do not appear to have any appreciable effect on the willingness of consumers to save more in order to acquire earning assets. The potential scope for such influence is small: in 1958 net acquisition of interest-bearing assets by consumers was about $15 billion out of PDI of $317 billion. Interest rates on savings assets are not sensitive to short-run market conditions, but even when they do change, this does not affect the propensity to consume. As evidence, note the stability of C/PDI from 1951 through 1958, during which time interest rates in general rose very considerably.

Psychological Factors. In the long run, the relation between income and consumption depends on the strength of consumer desires for consumption and saving. At any given time, these propensities differ for different families, depending upon income status, age, and stage of the family life cycle. Changes in the income or age composition of the population may influence aggregate saving-consumption patterns. We shall explore the behavior of consumer saving further in Chapter 10. Here it is sufficient to note that the long-run income-consumption relation appears to have remained remarkably stable in the twentieth century. Raymond Goldsmith's estimates for the years 1897–1929 show that C/PDI ranged between 80 and 97 per cent, with an average value of 90 per cent. This does not differ appreciably from more recent values.[3]

Short-run variations in spending desires may arise from drastic alterations in expectations. If consumers believe that rapid price increases are coming, they may accelerate their spending. If they expect their incomes to fall, they may reduce current spending. The influence of expectations was very evident in the summer of 1950, when the Korean conflict broke out. In the third quarter of 1950, consumption rose nearly \$15 billion, while PDI went up only \$9 billion. (Both figures are annual rates, seasonally adjusted.)[4] Consumers feared that prices would rise and that the shortages and rationing experienced during World War II would return.

However, it takes a substantial jolt to accelerate consumer buying. Price increases at the rate of 2 or 3 per cent a year, as experienced in 1956–1958, do not appear to have caused appreciable speeding up of spending.

The desire to spend may be influenced by such unusual forces as those associated with World War II. The combination of shortages, rationing, and patriotic appeals to buy savings bonds kept consumption low in relation to income.

Certainly there are other psychological variations occurring all the time which account for some of the fluctuations in the income-consumption relation. However, our data may well exaggerate the significance of those fluctuations, for we have compared the income each year with the consumption of the same year. Our data thus measure the propensity to consume ex post. It is possible that in some years income changes have occurred too late to be reflected in consumption adaptations. The stability of the average propensity C/PDI indicates a definite normal relation. We may be justified in concluding that some fluctuations in the marginal propensity $\Delta C/\Delta PDI$ reflect lags in achieving this normal relation rather than departures from it.

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[3] *A Study of Saving in the United States,* Princeton University Press, Princeton, N.J., vol. I, pp. 427–429, 1955.

[4] U.S. Department of Commerce, *U.S. Income and Output,* 1958, p. 47.

Conclusions—The Propensity to Consume. Under relatively normal economic conditions, consumption is a stable proportion of personal disposable income—about 93 per cent in the 1950s. Normal year-to-year changes in *PDI* will tend to produce changes in consumption about 93 per cent as large. Variations in credit conditions may alter this pattern by ± 1 per cent at most. Changes in consumer psychology can bring larger deviations, but such changes are unlikely to occur unless provoked by some unusual external circumstances.

For abnormally large variations in *GNP,* of the sort experienced in 1929–1945, the marginal propensity to consume may fall below the average. When incomes fall substantially, consumers will not cut their spending proportionately, nor will they increase spending in proportion to large income increases.

Consumption is also a relatively stable fraction of total *GNP*—about two-thirds in the late 1950s. In the absence of government fiscal influences, $\Delta C/\Delta GNP$ is likely to show behavior similar to $\Delta C/\Delta PDI$ with respect to moderate and large variations. However, fiscal policy has in recent years insulated consumption against declines in *GNP*. Lower taxes and higher transfer payments have raised *PDI* and consumption even when *GNP* went down.

Although the stability of these income-consumption relations is not quite high enough to support accurate predictions of consumption behavior, the observable stability is more than adequate to serve as a basis for explaining the general pattern of consumption spending.

IMPLICATIONS OF A STABLE PROPENSITY TO CONSUME

The Concept of Equilibrium. The impressive degree to which consumption changes reflect income changes helps greatly in explaining the behavior of *GNP* over time. Consumption spending appears as a passive factor that adapts itself to changes originating elsewhere. Variations in *GNP* are likely to originate with changes in investment or government purchases, even though large absolute variations in consumption may result.

The way in which such adjustments work themselves out can usefully be explored by using the notion of equilibrium in the level of *GNP* expenditures. Equilibrium is a condition of rest, where there are no inherent characteristics making for change in the state of affairs. If things are in equilibrium, they will tend to stay there. More important, if they are not in equilibrium, they will tend to move toward it. *GNP* is in equilibrium if it stays at the same level over time, instead of rising or falling.

We can illustrate this concept with a numerical example. If we assume that government transactions are so small that they can be ignored, *GNP* expenditures consist solely of consumption and investment. Gross income (*GNP*) consists of *PDI* and *BDI*. We need not concern ourselves with the proportionate division of gross income but assume that the proportion remains constant. Consumption is determined by income but lags behind it. We assume that consumption in any time period equals two-thirds of the gross income (*GNP*) of the preceding period. If we select a figure for investment, we can find an equilibrium value for *GNP* to correspond with it. Let us suppose investment is $60 billion.

We can find our equilibrium in the following manner. First, we express our data in equation form, as follows:

$$\begin{aligned} GNP_{t1} &= C_{t1} + I_{t1} \\ C_{t2} &= \tfrac{2}{3}\, GNP_{t1} \\ I &= \$60 \text{ billion} \qquad \text{(same for } t1,\ t2, \text{ etc.)} \end{aligned}$$

The subscripts represent time periods *t*1, *t*2, etc. In order for equilibrium to exist, *GNP* must remain the same from one period to the next. We can set up our equations to show this, as follows:

$$\begin{aligned} GNP_{t1} &= GNP_{t2} \\ GNP_{t1} &= C_{t2} + I_{t2} \\ GNP_{t1} &= \tfrac{2}{3}\, GNP_{t1} + \$60 \text{ billion} \\ \tfrac{1}{3}\, GNP_{t1} &= \$60 \text{ billion} \\ GNP_{t1} &= \$180 \text{ billion} \end{aligned}$$

Equilibrium will exist if *GNP* equals $180 billion. If it does, the consumption of the following time period will be two-thirds as much, or $120 billion, and investment will be $60 billion; therefore total spending in the second period will again be $180 billion. So long as the level of investment and the propensity to consume remain the same, *GNP* will remain at the equilibrium level.

If *GNP* is not in equilibrium, it will tend to move toward the equilibrium level. Suppose it were for some reason at $150 billion, with the above data for investment and the propensity to consume. It would tend to rise, as the following figures illustrate:

Category	Time period						
	1	2	3	4	5	. . .	*E*
Consumption	—	100	107	111	114	. . .	120
Investment	—	60	60	60	60	. . .	60
Gross income (*GNP*)	150	160	167	171	174	. . .	180
Saving (ex ante)		50	53	56	57	58	60
Saving (ex post)	—	60	60	60	60	. . .	60

This kind of table, which we shall use frequently, follows the flow of expenditures and income over time. Read the events of each period from top to bottom, then move to the top of the next period. The reader is urged to work out the arithmetic of saving, consumption, and *GNP*, so that the logic of the figures is clear. Try calculating expenditures and saving for period 6.

In period 1, *GNP* is $150 billion. Since the propensity to consume is taken as two-thirds of this figure, consumption in period 2 will be $100 billion. The difference between C_{t2} and GNP_{t1} reflects the amount of disposable income which people want to save—ex ante saving. In our table, it comes immediately after *GNP* in order to show that by deducting it from *GNP* we determine the subsequent amount of consumer spending.

The figures show that it is consumption which pushes *GNP* up toward the equilibrium level. With gross income of $150 billion, consumers will spend $100 billion. Since investment is $60 billion, *GNP* rises to $160 billion. This means an equal rise in gross incomes, and consumption rises again in the next period. Income and consumption keep pushing each other up, but since the propensity to consume is less than 100 per cent, each successive increase is smaller than its predecessor. *GNP* increases at a progressively decreasing rate. Mathematically, the process describes an infinite series. The equilibrium level is the limit which the series approaches, but technically it never gets there.

If *GNP* were above the equilibrium level, it would decline. Consumption would not be enough, at the given level of investment, to keep total spending constant at any level above $180 billion. As consumption declined, it would drag down income and thereby lower consumption again. *GNP* would move in steps of decreasing magnitude toward the equilibrium level but would never quite get there.

Saving and Investment. Equilibrium relations can usefully be analyzed in terms of saving and investment. Saving ex ante is the amount people wish to save out of any level of disposable income and is determined by deducting consumption of a given period from the total disposable income of the preceding period.

When *GNP* is in equilibrium, saving ex ante is equal to investment. The amount of money drawn out of the expenditure circuit through saving is just matched by the amount put back by investment; hence the flow remains constant. If investment does not equal saving ex ante, then *GNP* is out of equilibrium. For instance, when *GNP* was $150 billion in our example above, ex ante saving was $50 billion, while investment was $60 billion. The injection of spending through investment exceeded by $10 billion the withdrawal of funds through saving and *GNP* rose by $10 billion.

By contrast, the data for saving ex post do not tell us anything about equilibrium. Saving ex post is measured by subtracting the consumption of any period from the aggregate disposable income of the same period. Obviously the difference will always be equal to investment. Thus, when discussing equilibrium relations, we must be careful to use ex ante saving as the test.[5]

A Graphic Approach to GNP Determination. The way in which *GNP* moves toward equilibrium at a given level of investment and propensity to consume can also be shown graphically. In Figure 7-3 we measure horizontally the gross incomes (*GNP*) received in any time period. Vertically we measure the amount of expenditures which are made out of these incomes in the next period. In order for equilibrium to exist, the expenditures must just equal the income of the previous period.

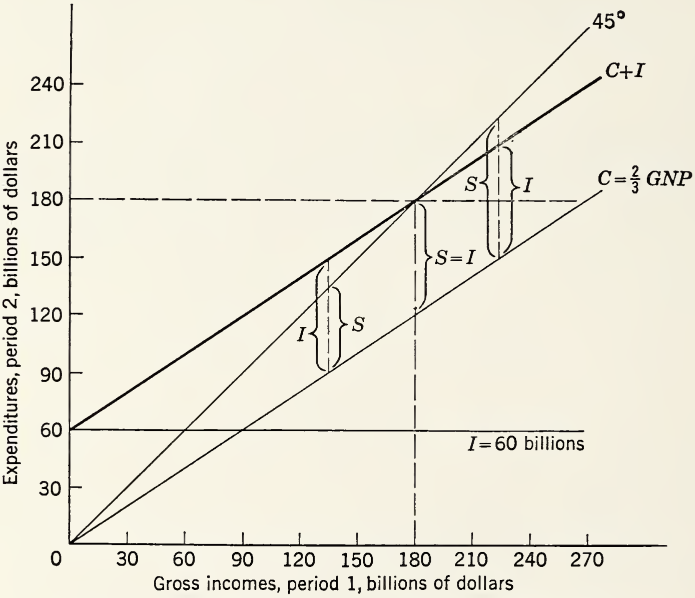

Fig. 7-3. Determination of the equilibrium level of *GNP*.

A line is drawn from the origin so that it makes an angle of 45°

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[5] In practice, it is sometimes useful to distinguish between ex post and ex ante investment. Business firms may at times engage in "involuntary" inventory investment or disinvestment. For instance, if sales fell off suddenly, a firm might find its inventories much larger than it wished, and some time might ensue before they could be disposed of. If equality with saving is achieved by such involuntary action, the result is not equilibrium. Technically, therefore, equilibrium requires that ex ante saving equal ex ante (intended) investment.

with the base. This line bisects the angle made by the horizontal and vertical coordinates. Each point on the 45° line is equally distant from the two axes. Thus the 45° line is the locus of all points which can meet the equilibrium conditions.

To show the determination of *GNP*, we draw on the diagram the amounts of consumption and investment which will take place at various levels of gross income (*GNP*). If we plot the numerical example we used above, consumption is two-thirds of *GNP* and can be shown by a straight line that is drawn from the origin and makes an angle of 30° with the base. Investment we have treated as a constant that does not vary with *GNP*. It can be shown as a horizontal line, the height of which equals the given level of investment. In the diagram it is drawn equal to $60 billion.

The total amount of *GNP* expenditures equals the sum of C and I at the existing level of gross income. We can add C and I graphically by drawing a new line with a vertical distance equal to the combined vertical distances of C and I at that income. Since all equilibrium points must lie on the 45° line, we need merely find the place where the $C + I$ line crosses the 45° line. This occurs at a gross income of $180 billion, where C equals $120 billion and investment $60 billion, so that expenditures will equal income and *GNP* will remain the same.

We can also use the diagram to analyze the saving-investment relationship. Saving ex ante is equal to the amount by which consumption falls short of gross income, and thus is measured by the vertical distance between the C line and the 45° line. Investment is equal to the difference between the C line and the $C + I$ line (by definition). At the equilibrium point, these two vertical distances are equal; at other points they are not.

On first examination, the concept of equilibrium may appear to be of little use. In reality, conditions are always changing, and *GNP* is not likely to be given a chance to settle into a position of rest. However, the equilibrium concept is useful largely as an indication of tendency. When a change does occur in one of the underlying determinants, we can use equilibrium analysis to see what its effects are likely to be and how fast they may be brought about, even if we know that they will never be fully accomplished. The next section illustrates this approach to utilization of the equilibrium concept.

The Multiplier Effect. Because consumption spending is largely a passive factor that adjusts itself to income levels, changes in *GNP* will originate mainly from changes in investment and government finance. Because of the way in which income variations produce consumption variations, however, the ultimate effect on *GNP* of a given change in investment or government finance may be much larger than the initiating force. This magnification results from the multiplier effect, the operation of which we shall illustrate.

Let us start from our previous equilibrium, with *GNP* at $180 billion, investment at $60 billion, and consumers spending two-thirds of gross income. Then, for some reason investment rises to $70 billion and stays there. The effect on *GNP* is shown in the following figures:

Category	Time period						
	1	2	3	4	5	. . .	*E*
Consumption..........	120	120	127	131	134	. . .	140
Investment............	60	70	70	70	70	. . .	70
Gross income (*GNP*)...	180	190	197	201	204	. . .	210
Saving ex ante.........	60	63	66	67		. . .	70

The initial effect of higher investment spending is that producers of capital goods and their suppliers will receive $10 billion more income than before. They will spend two-thirds of the increase on consumption. The greater consumption creates added incomes for the producers of consumer goods, who in turn increase *their* consumption. The process continues in the same manner, but the increases become increasingly smaller until *GNP* approaches a new equilibrium level of $210 billion. Therefore the initial increase of $10 billion in investment raised the equilibrium level of *GNP* by $30 billion. This relation between the change in *GNP* and the initial investment change is called the "multiplier effect." It results from the induced increases in consumption which follow when incomes are increased. The multiplier process is one of successive respendings, in which higher investment leads to higher incomes, which lead to higher consumption spending, which raises incomes still further, and so on.

The multiplier is measured by the ratio between the change in equilibrium level of *GNP* and the initiating change in investment. In our example, the multiplier would be 3. The size of the multiplier depends on the increases in consumption which result from increased *GNP*. The multiplier can be determined from the following formula:

$$\text{Multiplier} = \frac{1}{1 - (\Delta C/\Delta GNP)}$$

In our example, where consumption was two-thirds of *GNP*, the formula would work out as follows:

$$\text{Multiplier} = \frac{1}{1 - 0.67} = \frac{1}{0.33} = 3.0$$

The coefficient which emerges from this formula indicates that a change in investment will produce a change in the equilibrium level of *GNP* three times as large (and in the same direction, needless to add).

The larger the propensity to consume, the larger the multiplier. *GNP* goes up so much because people spend most of their increased incomes. The larger the proportion they spend, the larger the increase in *GNP* attending a given initial rise of investment.

The multiplier effect can also work in a downward direction. For example, suppose that from our equilibrium position of $180 billion, investment fell from $60 billion to $50 billion. A downward spiral would ensue, in which sellers of capital goods would suffer reduced incomes and would reduce their consumption; consequently, other producers would sustain reduced incomes and consumption. *GNP* would fall by successive stages toward a new equilibrium level of $150 billion.

Since the multiplier process involves successive respendings over time, it is useful to know how long the process takes. Data on the turnover of money in the economy indicate that it takes about three months for expenditures on current output to complete the circuit and be ready for expenditure again. Thus our time periods are about three months long.

For many purposes, it may be more useful to know approximately how much a given stimulus will raise *GNP* within a limited period, say, a year. The multiplier formula given above is of limited practical value, since it is unlikely that *GNP* will work its way to a new equilibrium position. If each time period is three months in length, if the initial stimulus occurs in the first period, and if consumption adjusts to income after a lag of one period, the equation for the one-year multiplier is

$$\text{Multiplier} = 1 + \frac{\Delta C}{\Delta GNP} + \left(\frac{\Delta C}{\Delta GNP}\right)^2 + \left(\frac{\Delta C}{\Delta GNP}\right)^3$$

In the preceding example, where $\Delta C/\Delta GNP$ was 2/3 and the ultimate multiplier was 3, an increase of $10 billion in investment raised *GNP* by $24 billion at the end of one year. Thus the one-year multiplier was 2.4 $(= 1 + 0.67 + 0.44 + 0.29)$.

If the marginal propensity to consume is less than 100 per cent and if three months is the average period of income turnover, the one-year multiplier cannot be larger than 4. Variations in the propensity to consume will have much less effect on the size of the one-year multiplier than on the equilibrium multiplier. Large values for the equilibrium multiplier entail a large number of respendings, and thus a longer time is required for *GNP* to progress a given fraction of the way to its new equilibrium value.

Multiplier analysis implies that investment changes infrequently and stays constant for long periods despite large changes in consumption. This implication is unrealistic, and we shall remedy it subsequently. The purpose of multiplier analysis is to show the consequences for consumption from a given shift in investment.

The multiplier effect is shown graphically in Figure 7-4. The diagram shows *GNP* initially in equilibrium at $180 billion. When investment increases to $70 billion, the result is to raise the $C + I$ line throughout its length. This causes the point of intersection with the 45° line to shift to the right to a new equilibrium level of $210 billion. The size of the multiplier is represented graphically by the ratio between the vertical change in investment ($10 billion) and the horizontal movement of *GNP* to the equilibrium point. This ratio is determined by the slope of the *C* line, which represents the marginal ratio of consumption to *GNP*. The higher this ratio, the steeper the $C + I$ line, and the greater the horizontal movement accompanying a given vertical change.

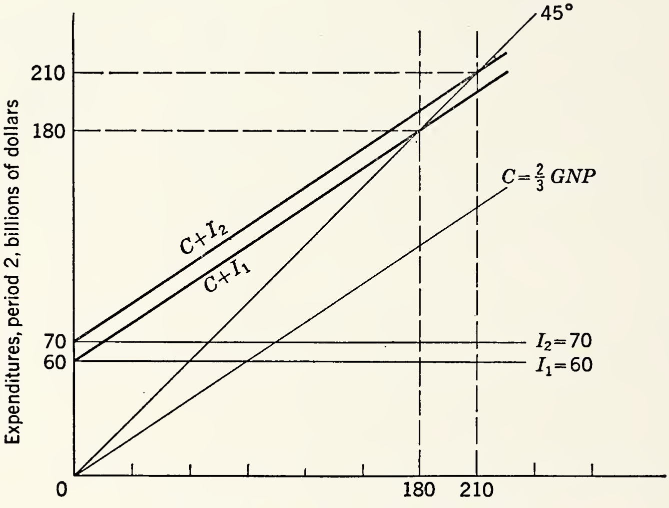

Fig. 7-4. The multiplier effect.

DETERMINANTS OF INVESTMENT

Some Classifications. In the previous section, we have seen the consequences of change in investment when the propensity to consume is stable. Now it is time to inspect the causes of investment variation.

There are three main categories of investment spending—plant and equipment (business durable capital), net increases in business inventories, and residential construction. Our discussion will be concerned chiefly with business investment spending, but we shall also deal with residential construction before we finish.

Business investment spending can be analyzed in terms of the same kinds of determinants that were used for consumption. We shall look briefly at the theoretical aspects of these and then examine statistical evidence.

1. *Income.* A large proportion of business investment is financed out of reinvested profits and depreciation allowances. For many firms, access to external funds through borrowing or stock issue is limited and cumbersome. Even large firms which can easily obtain outside funds prefer to finance themselves out of income. Of course the willingness of firms to retain income is limited by the pressure of stockholders or proprietors for high dividends or withdrawals. But generally, prosperity and high profits stimulate higher capital spending out of income.

2. *Interest rates and credit conditions.* Although a large part of gross business investment (including replacements) is financed out of income, a large part of net investment depends on external funds obtained through borrowing or issue of securities. The willingness and ability of firms to borrow will be influenced by the cost and availability of credit. Capital expenditures which promise to be profitable when funds can be obtained cheaply may not be remunerative when high interest rates must be paid. Even more important, when credit stringency prevails, many firms may find themselves unable to borrow as much as they want.

3. *Psychological factors.* The volume of investment spending depends significantly on the incentive to invest, which is determined by the expected profitability of the investment. Since this involves a prediction, in which emotion and intuition as well as evidence are involved, we treat it as a psychological factor. However, this does not prevent us from examining some of the objective factors which exert influence.

The Marginal Efficiency of Investment. Economists have found it convenient to analyze expected profitability in terms of the "marginal efficiency" of the proposed investment. This is measured by the net addition to revenue (marginal revenue product) expected from the investment after deducting all costs except those involved in obtaining the funds for investment; it is expressed as a percentage of the purchase price of the capital goods. If the investment is intended to increase output, the firm will need to estimate the quantity of output which can be added, the price at which it can be sold, and the increases in other costs (labor, materials) involved in producing it. If the investment is intended to substitute capital goods for other resources (e.g., labor) in producing a given output, the firm must estimate the quantity of resources which can be dispensed with and how much money is saved by dispensing with them.

For instance, suppose a firm is considering buying a machine for $1,000 which is expected to last 10 years. The machine will enable the firm to increase output by 50 units per year, which it expects to sell at $5 each. Each of these additional units will entail labor and materials costs of $1. The firm could calculate the marginal efficiency of this investment as follows:

Added revenue per year = 50 units @ $5 =		$250
Added costs per year:		
Depreciation	$100	
Labor and materials	50	
Total	$150	150
Net revenue per year		$100

$$\text{Marginal efficiency} = \frac{100}{1{,}000} = 10 \text{ per cent}$$

Thus the firm would get back its initial outlay plus a return on its money of about 10 per cent per year. From this calculation we can take note of all the factors which might cause changes in the expected profitability of a given investment. They include the following determinants:

1. Technology, which determines the quantity of output that can be produced with the machine and the amount of labor and materials needed and influences the lifetime of the machine
2. Demand for the finished product, reflected in the price at which it can be sold
3. Initial cost of the machine
4. Costs of labor and materials

These are all factors which may change substantially, so marginal efficiency estimates are correspondingly volatile. Furthermore, since the revenues and some costs lie in the future and cannot accurately be foreseen, marginal efficiency estimates inevitably involve elements of uncertainty and may reflect hunches and intuition. In many cases, the estimates may be expressed as a range of probable values, rather than a single figure.

For each firm and for the economy as a whole, the marginal efficiency estimates of all prospective investments can be regarded as a schedule in which projects are listed in the order of their expected return. The projects with the highest returns would be at the top and would be the ones most likely to be undertaken. The schedule would show an increasing number of projects with lower expected returns. Thus the marginal efficiency of investment as a whole (that is, the expected return on the marginal project) would vary inversely with the volume of total investment. There are two reasons in particular for this inverse relation:

1. As the quantity of capital goods is increased during any short period of time, with technology and labor force relatively constant, the marginal productivity of capital falls because of the law of diminishing returns.

2. Many firms fear that rapid increases in output resulting from capital expansion lead to saturated markets and lower product prices.

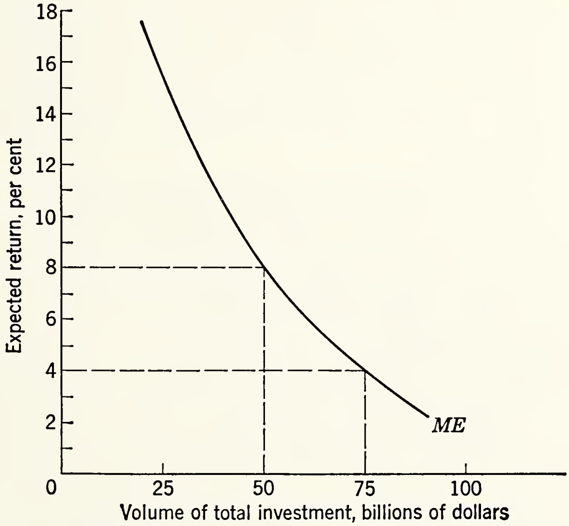

FIG. 7-5. Hypothetical marginal efficiency schedule.

A hypothetical schedule of the marginal efficiency of investment for the economy as a whole is represented graphically in Figure 7-5.

The diagram indicates that there are $75 billion worth of projects which yield 4 per cent or more, and of these, $50 billion worth yield more than 8 per cent. As investment increases, it will extend to items with lower and lower prospective return.

Marginal Efficiency and Cost of Funds. In order for an investment to take place, not only must it hold out the prospect of a profit but also the firm planning it must be able to obtain sufficient funds on terms which leave some net gain above interest and other costs. If the firm has profits which it could reinvest, no actual money cost is involved in providing the funds. But the firm must weigh the desire of stockholders or proprietors for current income against the future income it can offer them if the project succeeds. Even with internal funds, interest rates may represent an "opportunity cost" of funds. The firm is not likely to undertake an investment which offers a return lower than current interest rates. Instead, it will use its money to pay its debts and perhaps to acquire financial assets. However, other limitations are likely to be in operation before the firm gets this far down the marginal efficiency schedule.

For many firms, attractive investment projects exceed the amount of income they can reinvest; therefore they must consider whether it is worth while to incur the costs of obtaining external funds. If the marginal efficiency of a prospective investment is higher than the interest costs of financing it, the firm will probably be willing to borrow to undertake it. In our example above, the project offered a return of 10 per cent. If the firm could borrow at 6 per cent to finance it, their profits would still be increased by $40 a year. On these terms, they would presumably undertake it. If funds could only be obtained at 12 per cent, they would not.

The rate of interest which firms are prepared to pay will depend on the rate of return they expect from investment. Thus the marginal efficiency schedule becomes a sort of schedule of demand for loans. At low interest rates, firms will be willing to borrow more than at high rates, other things being equal. However, the demand for loans will be net of funds obtained from reinvested income.

If marginal efficiency estimates were reasonably certain and if firms could borrow all they wanted at the going rate of interest, they would borrow sufficient funds to undertake all projects which promised a higher return than the rate of interest. This activity would produce the result shown in Figure 7-6.

Given the marginal efficiency schedule ME_1, the amount of borrowing and investment will depend on the rate of interest. At 8 per cent interest, firms will borrow and invest $50 billion; but at 4 per cent, $75 billion. If the marginal efficiency schedule shifts, as it is likely to do, the amount borrowed and invested at any given rate of interest will change. A shift to schedule ME_2, which might result from a technical improvement or an increase in demand for finished products, would lead firms to borrow more at whatever interest rate prevailed.

One major valid conclusion produced by this analysis is that the demand for loans by business and the volume of investment will vary inversely with interest rates, assuming a given ME schedule. However, the precision implied by the diagram is hopelessly unrealistic. There is no systematic way to allow for internal funds or for the vagueness of estimates of marginal efficiency. The most serious fault is the assumption that firms can borrow all they want at the going level of interest rates. In reality, the capital market is not a perfect, impersonal organization through which anyone willing to sign a promissory note can obtain funds at some interest rate. Bankers and other lenders will often refuse outright to furnish funds to prospective borrowers whose credit is uncertain or whose projects seem unduly risky. Established firms will encounter quantitative limits on the amount they can borrow. Lending institutions usually limit the credit they will extend to any firm so that it bears some reasonable relation to the amount of capital which the owners of the firm have already put into it.

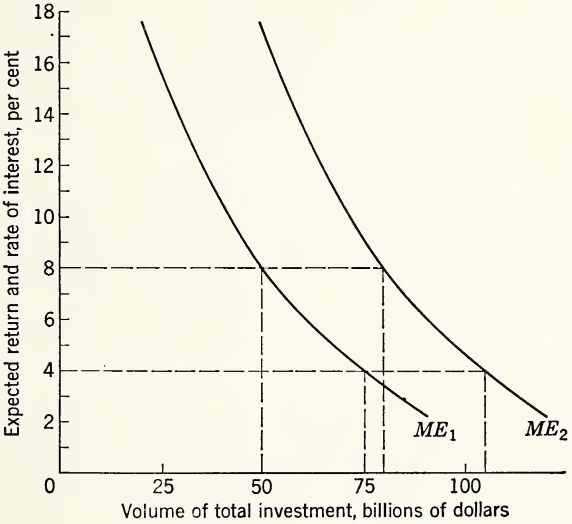

Fig. 7-6. Interest rates and investment.

Thus it is the availability of funds, rather than the interest cost, which provides the effective limitation on investment for most firms. (We shall use the term "availability" to refer to the quantitative limits on access to loans by any borrower resulting from the credit rationing of lenders.) As a consequence, some businesses find themselves consistently unable to make all the available investments which would yield more than the going interest rate. One consequence is that firms in such a situation may become insensitive to changes in the interest rate as such. Suppose a firm cannot obtain more than $100,000 in credit and with this can make investments yielding 10 per cent at the margin. So long as the interest rate is below 10 per cent, the firm will want to borrow and invest the $100,000, whether the actual rate is 5 per cent or 8 per cent.

The availability of credit for any particular seeker of funds will depend on two influences. The first is the relative ease or tightness of the general credit situation. When credit is easy and lenders generally have large amounts of money seeking profitable use, they may relax their standards of creditworthiness. Some marginal borrowers who formerly could not obtain funds at all will now be accommodated. Existing firms may find their "line of credit" enlarged, so that they can borrow more than previously. When credit is scarce, however, lenders may reduce the availability of funds to individual borrowers.

However, the availability of credit will always be influenced by the lenders' estimates of the risks involved. These will be partly risks peculiar to the individual borrower, but in part they will also reflect the general state of the economy. During a recession, lenders may take such a pessimistic view of the prospects for the economy that they reduce the availability of funds to high-risk borrowers, even though they may have abundant funds seeking investment. (In such a situation, it might be expected that well-established low-risk firms might find their access to funds increased.)

In the absence of serious economic disturbance, however, changes in interest rates and in the availability of credit generally occur together. During a period of easy credit, interest rates will decline and the availability of credit increase. When credit tightens, interest rates rise, and borrowers find themselves subject to more restrictive limits on borrowing, if they can obtain funds at all.

Statistical Evidence. Numerous studies have been made of the influence of financial factors on business durable investment. These include interviews and questionnaires as well as statistical studies of investment by individual firms, by industries, and for the economy as a whole. The studies are virtually unanimous in finding that the levels of profits and depreciation allowances exert a strong positive influence on durable investment. High current income furnishes funds for investment and may also increase the incentive to invest by affecting expectations.

About the effect of interest rates and credit conditions on durable investment, there is less agreement. Businessmen, in interviews and questionnaires, have usually conceded only a slight influence to interest rates as such. Several statistical studies have applied multiple correlation techniques in which interest rates have been tested for significant influence. Any correlation found by such methods might reflect the influence of credit availability, rather than interest rates as such. Meyer and Kuh, in their study of over 500 individual industrial firms covering 1946 to 1950, concluded that "interest rates proved to be of negligible significance."[6] This finding would indicate that availability of credit also exerted no significant influence. However, the period studied

[6] John R. Meyer and Edwin Kuh, *The Investment Decision*, Harvard University Press, Cambridge, Mass., 1957, p. 181. This book contains a handy survey of previous studies on pp. 25–35.

was one in which easy credit conditions prevailed. There were no substantial changes in long-term interest rates comparable to those in the 1950s. Furthermore, most firms were well supplied with liquid assets, and their incomes were high.

By contrast, a study by Gehrels and Wiggins of aggregate fixed investment in manufacturing for the period 1948–1955 found a substantial inverse correlation between interest rates and investment, but with the investment changes lagging a year. Their results indicated an interest elasticity of investment of about 0.9 in the neighborhood of 3 per cent interest rates. This would mean that an increase of interest rates of 10 per cent (e.g., from 3.0 to 3.3 per cent) would reduce investment by 9 per cent a year later if other influences were unchanged. Of course, the relation might be due to a reduction in the availability of credit rather than to the higher interest cost itself.[7]

Numerous reports in the business and financial press confirm the idea that limits on credit availability held investment in check at times during the 1950s. The degree of sensitivity is important in relation to the effectiveness of monetary policy as an influence for reducing cyclical variations in *GNP*.

The Acceleration Principle. One of the major factors determining the marginal efficiency of investment is the need for new productive capacity to keep up with increases in the demand for finished products. One particular form of this relationship is called the "acceleration principle," which is based on the assumption that firms will attempt to maintain a constant ratio between the total amount of their capital goods and their output or sales. When output is rising rapidly, firms will be increasing their capital rapidly. But if demand stops growing, firms will have enough capital and will cut their rate of current investment sharply. If the demand for finished products is falling, firms may find that they have more capital than they need and may reduce their scale of operations by permitting some to be depleted without replacement. Thus the acceleration principle postulates that a portion of investment spending (called "induced investment") is determined by the *rate of change* in demand for final products.

Let us see how the accelerator might work for an individual firm. Suppose this is a firm making shoes, which attempts to have on hand one machine of a particular type for each thousand pairs of shoes produced per period of time. We shall start from an equilibrium position in which the firm is making 100,000 pairs of shoes per period and has 1,000 machines on hand. We shall further assume that each machine lasts 10 years and that 100 machines now on hand wear out each year.

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[7] Franz Gehrels and Suzanne Wiggins, "Interest Rates and Manufacturers' Fixed Investment," *American Economic Review*, March, 1957, p. 81. In an earlier study, Lawrence Klein found an appreciable influence of interest rates on investment by railroads and electric utilities: "Studies in Investment Behavior," *Conference on Business Cycles*, National Bureau of Economic Research, Inc., New York, 1951.

The following table summarizes the firm's response to changes in demand and production:

Period	Desired shoe production	Total machines needed	Replacement demand	Added machines	Total demand for machines
1	100,000	1,000	100	0	100
2	110,000	1,100	100	100	200
3	120,000	1,200	100	100	200
4	120,000	1,200	100	0	100
5	110,000	1,100	(100)	(−100)	0

Beginning with period 2, we assume that the demand for shoes rises and that the firm desires to expand production. In order to produce 110,000 pairs of shoes, the firm wants 1,100 machines. This involves buying 100 additional machines, besides the 100 needed for replacement. Consequently, the firm's demand for machines doubles in the face of a 10 per cent rise in demand for shoes.

In period 3, demand for shoes rises again, to 120,000 pairs. To meet this increase, the firm expands its equipment by buying 100 additional machines as well as the 100 for replacement. However, this merely keeps the total purchases of machines equal to period 2.

In period 4, demand for shoes remains constant at 120,000 pairs. To maintain productive capacity, the firm needs merely to replace the 100 machines wearing out. Cessation in growth of demand for shoes causes demand for machines to fall sharply.

In period 5, demand for shoes declines to 110,000. For this output, the firm not only does not need additional machines but need not replace the 100 which are wearing out. Consequently it buys no machines at all. A decline in shoe output of about 8 per cent causes demand for machines to drop by 100 per cent.

In this example, the demand for additional machines represents induced investment. Replacement and any other capital expenditures not closely influenced by changes in demand are classed as "autonomous investment." Induced investment is determined by the rate of growth of shoe production multiplied by the ratio between capital and output (1:100). When shoe demand and output rise by 10,000, induced investment will be 100. Since the rate of growth of shoe output is the same in periods 2 and 3, machine demand is constant in those periods. When the rate of growth of shoe output is zero (period 4), the demand for additional machines is also zero. And when shoe output falls by 10,000, induced demand for machines falls by enough to offset the replacement demand.

Implications of the Acceleration Principle. If a large proportion of investment follows the pattern of the acceleration principle, there will be important consequences for the behavior of *GNP*. The accelerator will make even more unlikely the achievement of equilibrium and may produce cyclical fluctuations in *GNP*. Suppose *GNP* is in equilibrium to begin with and that an expansionary stimulus is then delivered by a rise in autonomous investment. This will raise incomes and consumer spending through the multiplier effect and will also stimulate induced investment by producers of capital goods who wish to enlarge their capacity to meet the added demand. Thus *GNP* is raised by both higher consumption and higher investment, and this in turn stimulates still higher consumption and investment in the following period. As long as *GNP* rises at a progressively increasing rate, it produces a rising level of induced investment; but it is likely that an increasing rate cannot be maintained in face of the leakage of a portion of income into saving. When the rate of increase of *GNP* slows down, producers reduce their induced investment. This slows *GNP* growth even more and may finally cause *GNP* to level off. Once *GNP* stops growing, the need for induced investment comes to an end because producers have enough capital. The resulting drop in induced investment pushes *GNP* down and sets off a downward spiral. In the face of falling demand, producers have too much capital and therefore stop buying, even for replacement. This will aggravate the downswing. Ultimately the rate of decline will slacken, and conditions will start to improve. This pattern may repeat itself if certain numerical coefficients of the multiplier and accelerator are in operation.

There are several logical objections to the underlying assumption that the ratio between capital goods and output will remain constant. Business firms frequently have excess productive capacity during periods of slack demand, so that they do not need more capital goods when expansion begins. The theory implies that funds will always be available for investment. It takes no account of changing prices and implies a mechanical relation between current sales and current investment, whereas it is the demand expected in the future which may be more influential.

Evidence on the Accelerator. There has been much dispute among economists on the actual validity of the acceleration principle as applied to fixed-capital investment. Evidence supports the idea that the motive of expanding capacity in line with demand is important to long-run investment patterns, but it does not appear that short-run variations in demand produce the pattern implied by the accelerator. Meyer and Kuh concluded that the accelerator seemed to function in situations where firms were operating near capacity and had an abundant flow of investible funds from internal sources. However, a critic has argued that the supporting evidence points chiefly to the predominant influence of existing income and the degree of capacity utilization.[8]

Direct comparison between aggregate business investment in fixed capital and the annual change in *GNP* from year to year during 1948–1958 indicates no significant correlation. There is a very high correspondence, however, between the level of *GNP* and the level of durable investment in each year; yet this cannot be interpreted to prove that investment is determined by *GNP*. The high correlation reflects partly the strong upward trend in both series and the "feedback" influence of investment changes on *GNP* through the multiplier. Nevertheless, we should not dismiss entirely the idea that the level of *GNP* is a significant influence on durable investment, for the level of *GNP* affects the degree to which existing capacity is used and largely determines the flow of business income. The *GNP* level is probably also a major influence on business psychology. Consequently, treating fixed-capital investment as being determined by the level of *GNP* may be a convenient shorthand method for taking account of a number of determinants.

Inventory Investment. Net changes in business inventories are a highly volatile element in *GNP*. Inventory behavior corresponds closely to the pattern of the acceleration principle. Inventories in manufacturing and trade maintained great stability in ratio to sales in the years 1948 to 1958.[9] Inventories on hand averaged 156 per cent of monthly sales, and figures for all years fell within a range of ±8 per cent of the average. Even the deviations from the average are in accordance with the theory. Inventories fell below average in 1950 and 1955, both years of rapidly rising sales. This indicates an inability of firms to catch up with demand and does not contradict the hypothesis they seek a constant inventory-sales ratio. In other words, the data measure ex post investment, which may appear less stable than if firms' intentions could be realized without delay.

Data on the behavior of aggregate inventory investment also support the acceleration principle. A multiple correlation study by Robinson found that the accelerator hypothesis was sufficient to account for monthly changes in department-store inventory expenditures.[10] A study of linear correlation between the year-to-year change in *GNP* and the level of inventory investment in the second year shows a high degree of correspondence for the period 1948–1958. Annual inventory investment for the second of any pair of consecutive years is quite well expressed by this equation:

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[8] Meyer and Kuh, *op. cit.*, pp. 134–135; Irving Morrissett, "A Note on the Empirical Study of Acceleration and Related Theories of Investment," *Review of Economics and Statistics*, February, 1957, p. 93.

[9] *Economic Report of the President*, 1959, p. 178.

$$In_{t2} = 0.275(GNP_{t2} - GNP_{t1}) - \$2.53 \text{ billion}$$

According to this equation, in a year when *GNP* rose $20 billion, inventory investment would be about $3 billion.[11] What did the equation predict for 1958, when *GNP* declined $0.8 billion? Actual inventory investment was —$3.8 billion.

This equation has a standard error of estimate of about $1.3 billion, or 50 per cent of average annual inventory investment. This means that in about two-thirds of the years, the estimated value is within ±$1.3 billion of the actual value. (Actually the estimates fall within that range in 7 out of 11 years.) This does not seem very accurate, but the annual level of inventory investment was highly unstable and ranged from a high of $10.2 billion to a low of —$3.8 billion. The standard error is only 10 per cent of this range. That the estimate deals fairly well with an unstable series is reflected in the coefficient of correlation, which measures the superiority of the above equation over an arithmetic average for predicting inventory investment. The coefficient of correlation of the equation is 0.95, which indicates that it successfully accounts for most of the year-to-year instability in the inventory series.

It is possible that inventory investment may be influenced by other factors. Some firms will reduce their inventories relative to sales when credit becomes very tight. Expectations of rapidly rising prices may lead them to expand inventories more than current sales warrant. On the whole, however, these influences have been minor compared to variations in sales.

Residential Construction. The volume of expenditures for new housing arises largely from consumer demand for housing. This reflects such long-run forces as the location and age distribution of the population, rate of family formation, etc. In the short run, demand for housing is sensitive to changes in income. During the years 1948 to 1958, annual investment in new housing averaged 5.8 per cent of *PDI* and ranged from a low of 5.1 per cent to a high of 6.8 per cent, which reflects a fairly stable dependence on income.

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[10] Newton Y. Robinson, "The Acceleration Principle: Department Store Inventories, 1920–1956," *American Economic Review*, June, 1959.

[11] Computed by the author from data in U.S. Department of Commerce, *U.S. Income and Output*, 1958, and *Survey of Current Business*, July, 1959.

Housing investment is also quite sensitive to credit conditions—perhaps more so than any other spending category. Probably three-fourths of the funds spent on new housing are borrowed. Consequently, variations in the quantitative availability of credit are bound to affect spending.[12] More influence comes through variations in costs and credit terms. Interest costs are a large part of the monthly payment on a home mortgage, and borrowers are sensitive to interest rates. Their willingness to borrow is also very sensitive to changes in such terms as the down payment requirement and the number of years allowed to pay off the mortgage. Ability to obtain mortgage insurance or guarantee from the government is also important.

Variations in housing investment around its normal ratio to income seem to reflect changing terms of credit, largely resulting from policies of government agencies dealing with housing credit. Easing credit raised housing expenditures relative to income in recession years 1954 and 1958, while credit restraint reduced them in 1956–1957. The years when housing expenditure was highest relative to income were 1950 and 1955, when easy credit was superimposed on rapidly rising incomes.

Summary of Investment Determinants. Income levels, interest rates and credit conditions, and psychological incentives and expectations all have a substantial influence on investment spending. However, the relationships differ with different kinds of investment.

1. Plant and equipment spending is strongly influenced by business income from profits and depreciation allowances. Variation in investment incentives (marginal efficiency) is also important. Such variations may arise from changes in the demand for finished products. Some investment depends on the rate of growth of demand, but most of it seems attuned to the prevailing level of demand (partly for income reasons). The state of business psychology always determines how current conditions will affect expectations of the future. Variations in interest rates and credit conditions have an appreciable effect on investment, operating particularly through changes in the quantitative availability of credit. This effect will probably become operative after a time lag.

2. Inventory investment depends chiefly on the rate of change of sales. Credit conditions and income are very minor factors.

3. Housing investment depends heavily on current levels of con-

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[12] A high statistical correlation between mortgage borrowing and housing expenditure is confirmed in David I. Fand, "The Debt-Expenditure Hypothesis and Residential Construction," *Southern Economic Journal,* July, 1959.

sumer income and on the incentive to buy housing, which is influenced by demographic conditions. Housing expenditure is also highly sensitive to credit conditions. Higher interest rates and less liberal conditions for down payment and maturity reduce people's willingness to borrow, and changes in quantitative availability affect their ability to do so.

These conclusions have important implications for monetary policy. High and rising levels of *GNP* tend to generate high levels of investment, since the incentive to invest will be high and abundant funds will be available from current income. However, the boom-period investment may reach a level too high to be maintained. Consequent exhaustion of investment opportunities may bring on recession and make recovery difficult. Thus it may be wise to exert restraint on investment spending during booms in order to keep it at maintainable levels and ease the burden of adjustment in recession by keeping down potential excess capacity. Monetary and credit restraint may therefore be desirable during boom periods, even if the situation is not seriously inflationary. Such restraint need not reduce capital formation in the long run but may merely redistribute it over time to stabilize its level. However, there is considerable disagreement about the practical efficacy of using monetary policy for this purpose and about the desirability of such an approach.

GOVERNMENT FINANCE AND GNP

Determinants of Government Revenue and Expenditure. More than any other sector, government has control over both its income and expenditures. By changing tax rates, it can alter its proportional share of gross income in a manner not available to the private sectors. In the long run, taxes and government expenditures are basically determined by the psychological tastes and preferences of the public, by their desire for public as opposed to private consumption and investment. These desires will be influenced by such objective factors as the international situation and will of course be asserted through the political process.

In the short run, however, tax rates are relatively stable. For state and local governments, expenditures may therefore depend on a level of income which is determined (in the political sense) and on willingness and ability to borrow or to repay existing debts. In the years 1946 to 1959, the expenditures of state and local governments exceeded revenues every year, the difference representing borrowing to finance capital expenditures for schools, roads, and other public facilities. However, net borrowing generally held within 10 per cent of total expenditure.

The political pressures for high expenditures at the state and local level are very strong. Thus any increases in tax revenue which result from higher incomes and prices are likely to be drawn into higher spending. Furthermore, the willingness and ability of many organs of government to borrow depends on current tax revenue. Consequently, borrowing and credit expenditures may rise with higher income also.

Variations in credit conditions exert some effect on borrowing by state and local governments. Usually a bond issue is authorized to be sold at a given interest rate and price. If credit tightens, some bonds may not find buyers at the authorized terms. In the long run, higher interest costs may lead voters to reject bond issues they might otherwise have approved. However, the short-run effect seems to have been more in evidence in the 1950s. Over longer periods, the demand for loans to finance public construction seems relatively inelastic to interest-rate changes. State and local governments do not suffer much from credit rationing. Their bonds enjoy an exemption from Federal income taxes and consequently find a wide market among wealthy investors. As long as it pays the market rate of interest, the amount of funds a state or locality can borrow is not likely to fluctuate with changes in credit ease and stringency.

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Category	Period					
	1	2	3	4	...	*E*
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BDI	38	39	39	40	...	41
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Changes in tax rates can also set off multiplier effects. A reduction in personal income taxes, for instance, would raise *PDI*. This increase would yield higher consumption, raise *PDI* again, and so forth. In the example above, see if you can figure the effects of reducing tax rates to 15 per cent of *GNP*. Changes in the rates of business taxes would have their initial impact on business income, and the ultimate effect would depend on whether firms passed the increased income on to stockholders and proprietors, spent more for investment, or shared the benefits more widely by lowering prices and raising wages.

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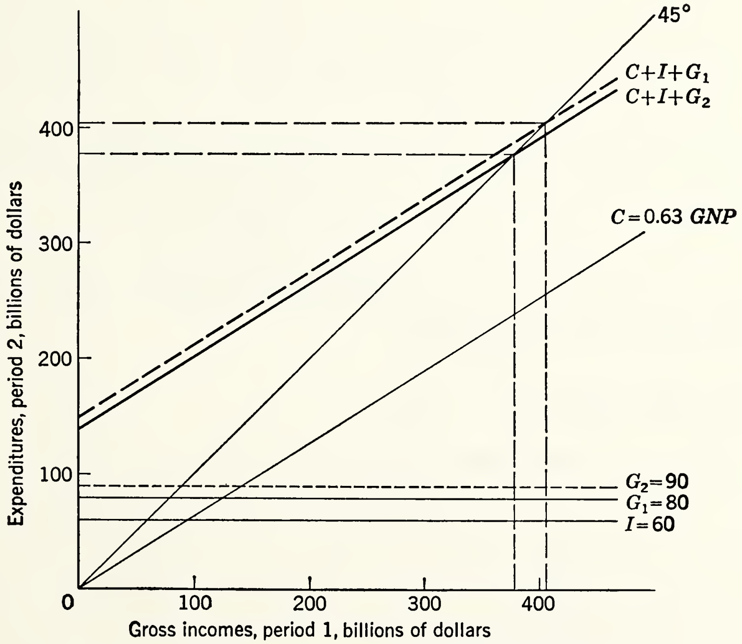

Fig. 7-7. Fiscal policy and *GNP* determination.

Figure 7-7 shows how the equilibrium position and the multiplier effect can be illustrated graphically when fiscal policy is involved. Investment and consumption are drawn as before, and government purchases are added as a horizontal line, indicating no systematic variation with *GNP*. The line of total expenditures is now $C + I + G$, and equilibrium exists where it crosses the 45° line, at *GNP* of $378 billion. An increase in government purchases shifts this line upward by $10 billion and thereby moves the equilibrium position to the right by an amount determined by the slope of the total expenditure line, which slope equals $\Delta C/\Delta GNP$. Changes in taxation and transfer payments would in most cases affect the consumption line. For instance, a reduction in personal income tax rates would raise C and also probably change its slope. These changes would affect the total-expenditure line similarly.

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We shall not attempt here to analyze the determinants of the long-run pattern of a country's foreign trade. These are dealt with in Chapter 12. In the short run, imports and exports interact with *GNP*. On the expenditures side, exports are a category of demand for output and produce effects similar to investment or government purchases. An increase in foreign demand for American exports will raise *GNP* directly. In addition, producers of export products will have higher incomes and will increase their consumption. Thus variations in export sales produce multiplier effects.

Import purchases by Americans are similar to saving and taxes, for they represent a withdrawal of funds from the stream of domestic income and expenditure. Furthermore, imports resemble saving and taxes in that they rise and fall in response to changes in *GNP*. One can speak of a propensity to import, just as there is a propensity to consume.

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By similar reasoning, American export sales are likely to fluctuate in response to variations in *GNP* in the importing countries. This relationship tends to transmit fluctuations from one country to another. For instance, rising *GNP* in the United States might lead to increased imports, which would raise *GNP* in the exporting countries, who might in turn buy more exports from the United States, and so on. Thus imports and exports affect each other through their influence on *GNP*. The ability of many countries to purchase imports also depends on the supply of foreign exchange which they receive from export sales or loans.

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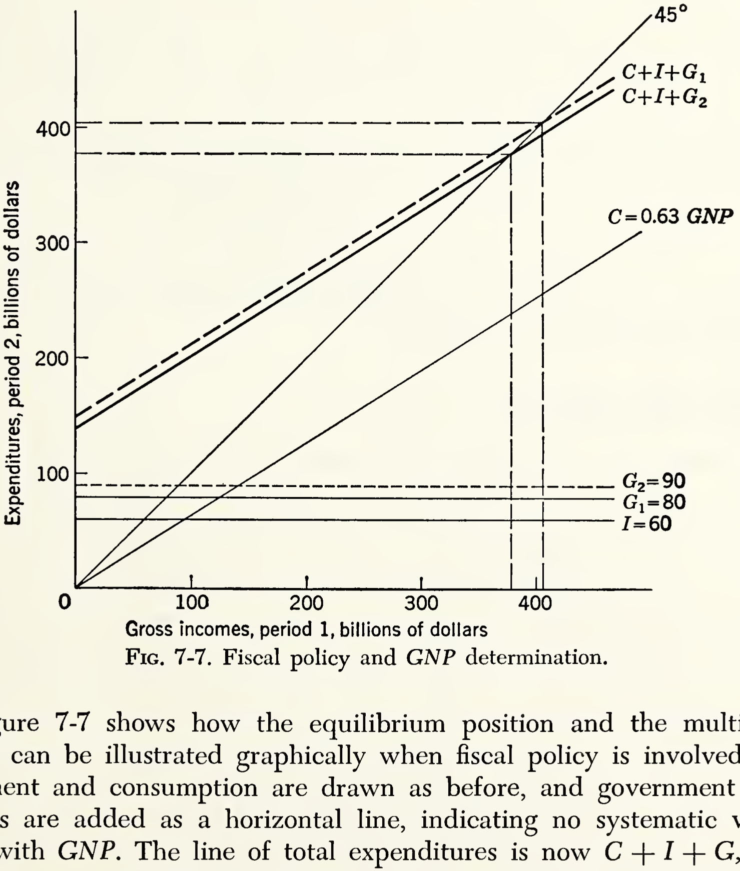

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State and local government spending, within the basic framework of political decisions determining tax rates, depends largely on income but may be affected slightly by interest rates and credit conditions. Federal spending is less closely tied to income. Federal fiscal policy is thus in a position to act countercyclically on *GNP*. To some degree this action occurs automatically as tax revenues rise and fall over the business cycle.

If each sector adjusts expenditures in response to changes in income, the economy as a whole will be subject to cumulative changes in incomes and expenditures. These variations will resemble the multiplier effect, but they may embrace all types of spending, not merely consumption.

GNP expenditures will tend toward an equilibrium level at which they would be stable. In equilibrium, saving ex ante will equal investment provided we include the government surplus (or deficit) as positive (or negative) saving. If saving exceeds investment, *GNP* will decline; if investment is larger than saving, *GNP* will rise.

Our analysis in this chapter has been almost exclusively in terms of money flows and money values. We have dealt with the money value of *GNP* and its components without specifying whether the variations reflected changes in prices or output or some combination of the two. The principles which apply to that problem have already been established. Increases in *GNP* can be expected to bring increased output if there are unemployed resources, but there will be increasing upward pressure on prices as full employment is approached. If *GNP* declines, output will probably fall substantially and prices somewhat less, if at all.

Let us conclude by examining the manner in which *GNP* and its chief components have varied in the United States since 1929, as shown in Figure 7-8. The major movements reflect the Depression of 1929–1933, the slow period of recovery 1933–1940, the rapid expansion and inflation during World War II, and the somewhat inflationary expansion which has occurred since the war. Lesser variations reflect the minor business fluctuations of the period—the recessions of 1937–1938, 1948–1949, 1953–1954, 1957–1958, the readjustment at the end of World War II (not really a recession for the private economy), and the inflationary surge when the Korean conflict broke out in 1950.

The chart does not tell us what caused what, but our previous analysis indicated that consumption has generally been a passive factor in *GNP* behavior. Investment and government purchases, which bulk much smaller in actual money value, have generally been the root of major *GNP* variations.

Declining investment of all types led the country into depression in 1929–1933, with declining incomes pulling consumption down, although *C/PDI* rose. Undoubtedly the downswing of 1929–1933 manifested the reciprocal interaction of the multiplier and the accelerator. The slowness and incompleteness of the recovery in 1933–1940 may be attributed to the failure of investment and government purchases to rise more vigorously during those years.

The great inflationary surge of World War II had its origins entirely in government purchases, for private investment actually declined. Consumption of course rose greatly in total magnitude, but this was an induced response to higher incomes; and *C/PDI* actually fell to abnormally low levels.

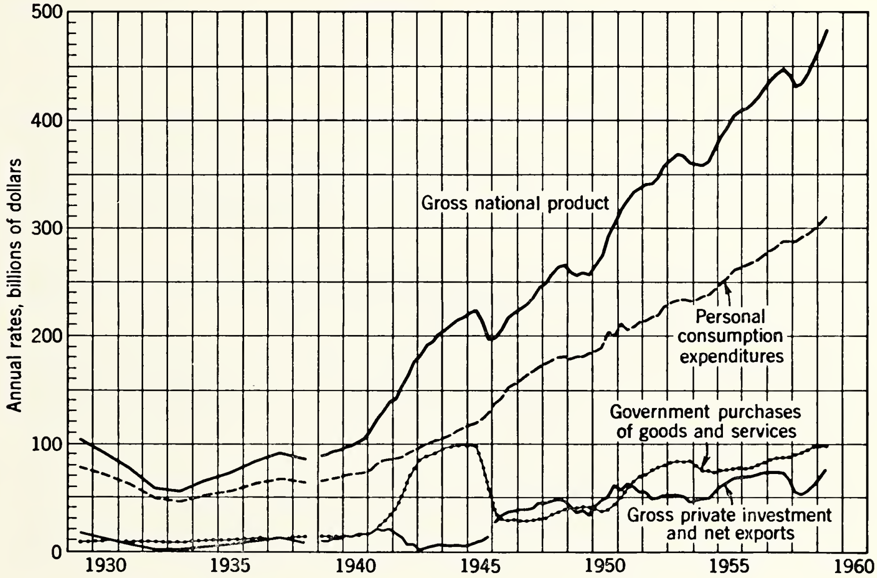

FIG. 7-8. *GNP* and its expenditure components, 1929–1958.

The transition from war to something more nearly resembling peace in 1945–1946 was clearly facilitated by the rise of investment and by high consumption resulting from tax cuts and release of pent-up wartime demand. Declining investment, chiefly in inventories, was responsible for the recession of 1948. The inflationary outburst in 1950 at the outbreak of the Korean conflict stemmed chiefly from scare buying by business and consumers, with increased government spending coming later. The recession of 1953–1954 originated chiefly in reduced Federal defense spending, which set off an induced reduction of inventories (acceleration effect). Investment and government purchases both sparked the boom of 1955–1957, and slackening of investment produced the recession of 1957–1958. In all three postwar recessions, shifts in net government revenue helped sustain personal disposable income and prevented the downswing from developing into a serious cumulative movement.

QUESTIONS FOR STUDY

1. Define the following terms:
    a. The propensity to consume
    b. The marginal propensity to consume
    c. The acceleration principle
    d. The multiplier
    e. Induced investment

2. Omitting government transactions, calculate the equilibrium level of GNP if $C_{t2} = \frac{3}{4}\ GNP_{t1}$ and $I =$ \$50 billion. Prove it is an equilibrium. Find the new equilibrium if I rises to \$60 billion; if it falls to zero. If I remains at \$50 billion and C_{t2} rises to $\frac{4}{5}\ GNP_{t1}$, what will be the equilibrium level of GNP?

3. What is meant by the equilibrium level of *GNP*? Of what use is the concept? Show how equilibrium can be expressed in terms of saving and investment, giving careful attention to the definition of saving.

4. Assume that $C_{t2} = \frac{4}{5}\ PDI_{t1}$, $I =$ \$30 billion, government purchases equal \$20 billion, and taxes equal $\frac{1}{4}\ GNP$ $(BDI = 0)$. Find the equilibrium level of *GNP*. What happens if I rises to \$40 billion? What is the size of the multiplier? What determines its size?

5. Prove or illustrate the proposition that the larger the multiplier, the longer it takes it to reach a given proportion of its final value.

6. Explain the process and the result that each of the following would produce in *GNP:*
    a. In increase in the marginal efficiency of investment
    b. An increase in tax rates
    c. A shift from home products to imports by consumers
    d. Easing of credit
    e. An increase in government transfer payments
    f. An equal increase in government purchases and in tax revenues (Try this change on the numerical example given on page 173.)

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CHAPTER 8

THE MONEY SUPPLY, CASH BALANCES, AND INTEREST RATES

INTRODUCTORY

So far in our discussion of monetary theory, we have concentrated our attention chiefly on the causes and consequences of variations in *GNP* expenditures. Our explanation of the spending behavior of individual sectors of the economy stressed the influence of income, interest rates and credit conditions, and various psychological incentives and expectations. Our emphasis in Chapter 7 was on main money circuit transactions, with incidental reference to the influence of credit conditions. In this chapter, we shall reverse the emphasis. Our stress will be on the behavior of the financial circulation, with particular attention to the interplay of the quantity of money, the public's desire to hold cash balances, and interest rates and credit conditions. However, we shall see that these factors do not occur in isolation but are conditioned by income-expenditure relations in the main circuit. Once we have completed this analysis of financial relations, we shall be able to bring the two halves of the picture together to get an idea of the interaction which occurs constantly between financial conditions and *GNP* expenditures. Only then can we explain adequately the relations among the quantity of money, *GNP* expenditures, and economic welfare.

The existing quantity of cash balances stands in a complementary position to the two areas of transactions flow. We have noted that for each transactor, during any given period of time, this equation must hold:

$$\text{Income} - \text{expenditure} = \begin{bmatrix} \text{acquisition of income-} \\ \text{bearing financial assets} \\ \text{minus borrowing} \end{bmatrix} + \begin{bmatrix} \text{net increase in} \\ \text{cash holdings} \end{bmatrix}$$

The income-expenditure relation measures the net direct expansionary or contractionary influence exerted in the main money circuit. Net borrowing or acquisition of earning financial assets measures the net influence exerted in the financial circulation. If cash holdings remain constant, variations in the other two items must be compensating; but variations in cash holdings enable individual transactors to exert an expansionary or contractional influence in one area which is not offset in the other. Indeed, by reducing cash holdings, a transactor can exert an expansionary influence in both transaction areas simultaneously. He can spend more than his income and at the same time pay debts or add to his income-bearing financial assets.

Because of the interlock among receipts, outlays, and cash holdings, the analysis of the desire to hold cash overlaps with the analysis of decisions to spend, to borrow, or to acquire financial investments. We shall see that the amount of cash people want to hold depends on the same factors which explain their spending behavior—incomes, interest rates, and psychological preferences and expectations.

THE DEMAND FOR CASH BALANCES

Meaning. All the money supply (except for funds in the mail) is part of the cash balance of some economic unit. Most of it is held by business firms and individuals. To the extent that people want to hold cash balances, we say that they have a "demand for money." This is a tricky concept. The mere fact that people would like to have more money does not constitute an economic demand for it, any more than an unfulfilled desire for any commodity would be a demand for it. With money, as with commodities, people must be willing to give up something in order to make their demand effective. Furthermore, when we speak of demand for money, we mean demand for money to hold in cash balances, not to spend immediately.

A person can cause an increase in his cash balance simply by holding on to more of his income, instead of spending it. He foregoes consumption (or purchase of assets) in favor of holding cash. He might also sell assets, real or financial, or borrow the cash. In any case, an increase in the demand for money is equivalent to either a reduction in the demand for other things or an increased willingness to sell other things or to borrow.

For analytical purposes, it is convenient to consider cash balances as divided into two categories. The first consists of "transactions balances," or active balances, held as a medium of exchange to carry on current transactions. The second consists of "asset balances," or idle balances, held as a store of value. A transactor's actual cash holding is usually a combination of the two.

Transactions Balances. The need for cash to carry on transactions depends on the amount and timing of receipts and payments for individual transactors. Most consumers receive their incomes in lump sums at periodic intervals—every week, every month, or even less often for some property incomes. Consumers will wish to make expenditures at irregular dates in between such times. Many business firms find themselves in an opposite situation—sales receipts trickle in every business day, whereas payments for wages, interest, rents, etc., may occur infrequently. In either situation, a cash balance is convenient to bridge the discontinuity between receipts and payments.

Suppose Joe Doakes receives $70 a week in wages and spends $10 of it every day. The amount of transactions cash he keeps may range from $70 just after he gets paid down to zero just before. His average balance over the week would be about $35. (A prudent individual presumably would not permit his cash balance to fall to zero every week, but funds held in excess of current transactions needs may be regarded as asset balances, which are discussed below.)

The average amount of transactions cash Joe will need in relation to his income may change if the timing of his transactions changes. Suppose he is shifted to a monthly salary of $300 and continues to spend $10 a day. His annual income and expenditure are about the same, but he will need a larger cash balance. Over the 30-day interval, his balance may range from $300 to zero, but it would average about $150. Changing the timing of expenditures may also alter his need for cash. If he spent most of his income soon after payday, he would need a smaller cash balance, on the average, than when expenditures were spread evenly.

As long as the timing of receipts and expenditures is relatively unchanged, changes in the amount of transactions cash needed will chiefly reflect changes in the amount of income and expenditure. If Joe's monthly salary and expenditures rise to $400, his cash balance will tend to rise to $200 to finance an even flow of expenditures.

The cash-balance needs of business firms will also depend on the volume and timing of their sales and expenditures. The more closely payments follow receipts, the smaller the cash balance needed. The timing of business payments largely determines the timing of consumer income receipts, to which consumer cash balances are adjusted. Thus business payment practices are a basic determinant of the economy's need for cash balances. Since business payment practices do not vary much over short periods of time, the amount of transactions cash balances needed varies chiefly in response to variations in the amount of income and expenditures.

However, a cash balance is not the only medium available to permit expenditures and receipts to occur at divergent times. The ability to "charge it"—to buy goods by incurring book-credit liabilities to be discharged later—enables business firms and individuals to reduce the amount of cash holdings needed for transactions. Table 8-1 compares the cash holdings of business firms and households with their use of book credit.

Table 8-1

Money and Its Transactions Substitutes, December 31, 1958

(Billions of dollars)

Book-credit liabilities	*Households*	*Corporations*	*Noncorporate businesses*	*Total*
Charge accounts and service credit	$ 8	...	...	$ 8
Trade credit liabilities	...	$52	$ 5	58
Debit balances with stockbrokers	3	...	...	3
Total book-credit liabilities	$11	$52	$ 5	$ 69
Holdings of currency and demand deposits	57	34	19	110

SOURCE: *Federal Reserve Bulletin*, August, 1959. Data are rounded and may not add up to totals.

For all transactors, book-credit liabilities equaled about 60 per cent of cash holdings. The ratio was smallest for households and largest for corporations.

The extent to which book credit substitutes for cash holdings is, like the time pattern of payments, a relatively stable institutional factor. However, marginal changes may occur in reflection of the general ease or tightness of credit.

Some business firms and individuals may substitute interest-bearing assets for transactions cash. This substitution is not feasible on a small scale, since transactions balances fluctuate widely around an average level. Interest-bearing assets cannot be spent directly, and thus it would be necessary to buy and sell them within very short periods of time to meet transaction needs. For most transactors, there are no assets available which yield enough to compensate for the trouble, expense, and risk involved. Nevertheless, we noted that a large part of the money supply is held in very large balances by business firms, and such firms can use short-term government securities as a substitute for cash on virtually a day-to-day basis. Since the Treasury issues a new batch of three-month bills every week, there are always some available in the open market with only a few days to run until maturity. However, the eagerness of firms to deal in government securities in this manner will vary in proportion to the interest they can earn. When rates are low, most firms will not bother buying the securities. When rates are high, they will keep cash holdings to a minimum. In consequence, the amount of cash needed to conduct a given level of transactions may vary inversely with interest rates.

On the whole, the amount of cash demanded for transactions changes chiefly in response to changes in the volume of transactions. With higher incomes, wage earners will keep more cash in their pockets and checking accounts. With higher sales and disbursements, business firms will keep more cash in the till and in the bank.

This relationship has led to the use of the following equation to express the demand for transactions money:

$$D_m = kT$$

where T represents the money volume of income or transactions during the year, and k represents a stable fraction measuring the desired proportion between transactions and cash balance. The size of k depends on such institutional factors as payments timing and use of book credit, and perhaps on interest rates.

For the economy as a whole, the demand for transactions balances can be treated as a proportion of *GNP* expenditures. In the 1950s, the amount of transactions cash demanded was equal to about one-fourth of *GNP*.

Asset Balances. In addition to active transactions balances, business firms and individuals are likely to keep additional cash on hand as a liquid store of value. However, money is not the only liquid store of value. Savings deposits or government securities can be obtained which have as little risk as cash. Although these cannot be spent directly, they can be converted into cash readily, and they pay interest. To analyze the demand for money to hold in asset balances, we must first see what determines the public's demand for liquid assets generally (including money) and then see why the public would hold money in preference to interest-bearing assets.

Liquid assets are attractive because they are virtually riskless, their money value does not fluctuate, and they can be spent or cashed readily. Furthermore, they are accessible and familiar to virtually everyone. Consequently most households keep all their financial assets in liquid form. Their demand for liquid assets simply reflects variations in the relation of income and expenditures. An increase in saving accordingly raises the demand for liquid assets.

Business firms and wealthy individuals, however, are likely to hold liquid assets only after comparison with other stores of value. Liquid assets yield relatively low income, and in a period of inflation, rising commodity prices may reduce the real value of fixed-dollar assets. Consequently, transactors who have more direct familiarity with other types of assets and who are more willing to take risks and able to diversify their asset holdings will choose between liquid assets and such other stores of value as stocks, bonds, capital goods, or real estate. Willingness to hold liquid assets will be dependent on the attractions of less liquid assets—upon their prospective yields in interest or dividends, their prospective price changes, and the various risks involved.[1]

The relative demand for liquid assets would probably increase in a period when the investment outlook was pessimistic. If the prices of stocks and bonds were expected to fall or if risk and uncertainty about the state of the economy seemed high, investors would tend to shift to liquid assets. Such shifts might be precautionary in order to guard against losses and to accumulate liquid funds to deal with any eventuality, or they might be speculative, made with the expectation of purchasing other assets later when their prices might be lower. However, large investment portfolios always contain some liquid assets for safety and diversification.

Business firms may follow a similar pattern in their relative acquisitions of liquid assets and capital goods. When the marginal efficiency of investment is high, they may reduce their liquidity to buy more capital. When the outlook for profits becomes less favorable, they will be more likely to reduce capital outlays and hold more liquid assets. Both precautionary and speculative considerations may also be present here.

In the long run, the aggregate quantity of liquid assets held by the public reflects its past levels of financial saving. Short-run variations in demand for liquid assets may arise from changes in the rate of current saving, from changes in public expectations and attitudes about prices, incomes, and financial risks, and from changes in yields on nonliquid assets.

Given the demand for liquid assets as a whole, what proportion will be held in cash and what proportion in income-bearing forms? If there are no doubts about the safety of income-bearing liquid assets, the choice between them and cash will depend almost entirely on the rate of interest they pay. When interest rates are high, people will be more inclined to hold their assets in interest-bearing forms, such as bonds or savings deposits, and reduce their idle cash to a minimum. When interest rates are low, inertia or the positive advantages of liquidity may induce them to hold larger idle cash balances rather than to acquire earning assets with low rates of return.

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[1] For a wealthy investor, the range of choice among assets is vast indeed. Some idea of the range of choice and considerations involved is given by the following:

"In a world fearful of inflation, investing as a hedge against dwindling money values appears to change as fast as styles in women's clothing.

"Each year Dr. Franz Pick, money expert, analyzes investment trends. For 1958 he finds that French eighteenth century furniture—the Louis XV, or XVI vintage—proved to be the investment showing the best gain—200 to 225 per cent in value from the start of 1958 to the end. . . .

"Next in line for capital appreciation came rare books and manuscripts of the fourteenth through the sixteenth century. He estimates they have risen 100 per cent in value during the year. Also showing a 100 per cent rise, he says, were paintings by Cezanne, Gauguin, Matisse, Renoir, Rouault, and Van Gogh. . . .

"In fourth place, Dr. Pick ranks common stocks. . . .

"Diamonds, often considered a good investment, were virtually unchanged in price. Gold bars in world markets showed a slight decline, and gold coins were down 2 per cent. Platinum dropped 32 per cent. United States Government bonds declined 8 per cent, Dr. Pick disclosed." *New York Times,* Jan. 1, 1959.

If people do not expect drastic changes in incomes and prices, interest rates will be the chief determinant of the quantity of asset money demanded. This was the case in the 1950s. It takes considerable disturbance of expectations to affect the demand for money very much. Such a disturbance occurred during the serious economic downswing of 1929–1933, when declining incomes and prices, plus a great sense of risk and uncertainty, made people desire more cash. During periods of rapid inflation (as in Germany or Russia in the 1920s), the loss of real value drives people to reduce their holdings of cash and other liquid assets to a minimum.

Evidence on the Demand for Money Balances. The behavior of cash balances in the years 1949 to 1958 appears statistically to reflect two main influence—the level of *GNP* and of interest rates. The quantity of cash balances varied directly with *GNP* and inversely with the rate of interest r, in accordance with the formula

$$M = \frac{GNP}{4} + \frac{\$100 \text{ billion}}{r}$$

The interest rate is the average yield on long-term government bonds. Table 8-2 presents the estimated demand for money as given by this equation, compared with the money supply in each year.

Considering the round numbers used in the estimating equation, the correspondence is very good, and no effort was made to improve it by minute variations in the coefficients of the equation. It is possible that for some years, the supply of money was not in equilibrium with demand, and therefore divergence between estimated demand and actual supply is not necessarily evidence that the demand is estimated inaccurately.

The two terms in the estimating equation may be taken to represent approximately the two categories of cash balances demanded. The term $GNP/4$ thus estimates the demand for transactions balances, while \$100 billion/r reflects demand for asset balances. The size of the second term is related to the total amount of wealth and liquid assets in the economy

Table 8-2
Estimated Demand for Money, 1949–1958

(Billions of dollars)

Year	*GNP*	*r, per cent*	*GNP/4*	*\$100/r*	*Total demand*	*Actual supply*
1949	\$258	2.3	\$ 65	\$43	\$108	\$111
1950	285	2.3	71	43	114	114
1951	329	2.6	82	39	121	119
1952	347	2.7	87	37	124	125
1953	365	2.9	91	34	125	128
1954	363	2.6	91	39	130	130
1955	398	2.8	99	35	135	135
1956	419	3.1	105	32	137	136
1957	443	3.5	111	29	139	137
1958	442	3.4	110	29	140	139

SOURCE: Computed by the author from data in *Federal Reserve Bulletin, U.S. Income and Output, Survey of Current Business,* and *Economic Report of the President.* Money-supply data are annual averages of monthly figures and exclude Federal government cash and deposits. Figures are rounded and may not work out to precise results shown, which were derived from unrounded data.

and thus tends to rise over time. Consequently, our equation does not fit the years prior to World War II, nor should we expect it to remain applicable in the 1960s.

In the 1950s, the two categories of balances moved in opposite directions. Rising *GNP* increased the need for transactions cash, while rising interest rates reduced the attractiveness of idle cash as a liquid asset. The shift from idle cash to interest-bearing liquid assets is most evident in the behavior of households and state and local governments, as illustrated by Table 8-3.

Table 8-3
Cash and Liquid Assets Holdings, End of Year, 1948 and 1958

(Billions of dollars)

Year	Households		State and local governments	
	Cash	Other liquid assets	Cash	Other liquid assets
1948	\$49	\$132	\$ 7	\$ 9
1958	57	206	11	21
Percentage increase, 1948–1958				
	16%	56%	48%	133%

SOURCE: *Federal Reserve Bulletin,* August, 1959, pp. 1057–1059. Percentages calculated on unrounded data. Liquid assets include United States securities, time deposits, and shares.

The demand schedule for money can be illustrated graphically. Figures 8-1*a* and *b* show separately the schedules for transactions and asset balances. Note that the demand schedule for asset money possesses unitary elasticity, so that a given percentage change in the rate of interest leads to an equal percentage change in the quantity of asset money demanded, though the changes move in opposite directions.

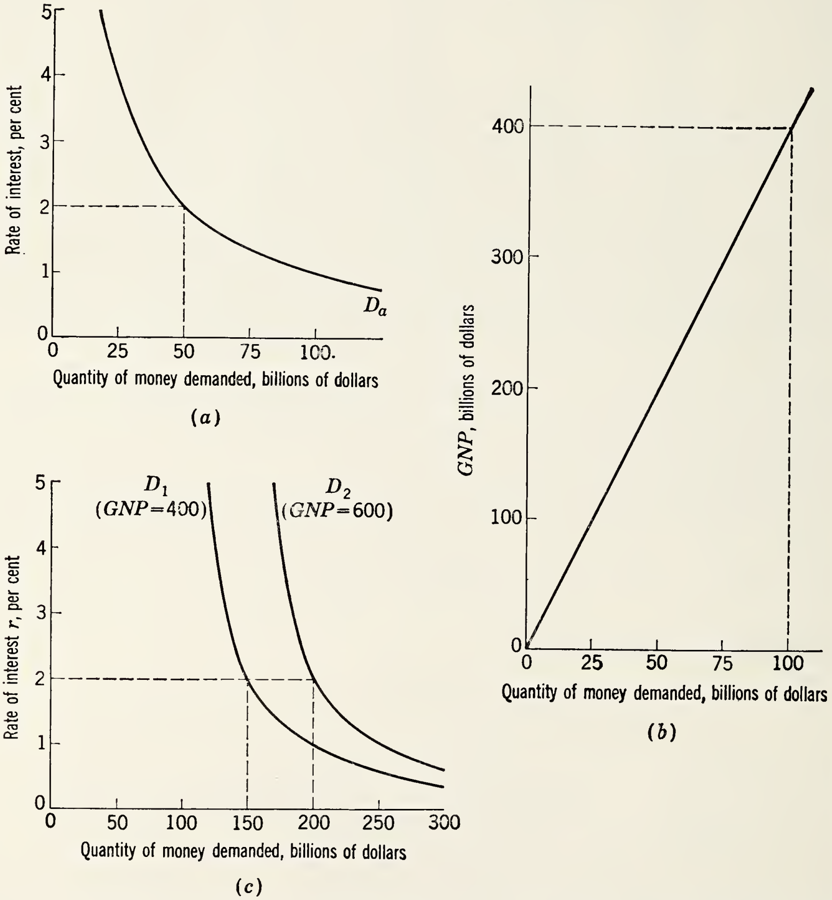

FIG. 8-1. Demand schedule for cash balances: (*a*) demand for asset balances; (*b*) demand for transactions balances; (*c*) total demand for cash balances.

In Figure 8-1*c*, the two types of demand are combined. Each demand curve shows the quantity of money demanded at one particular level of *GNP*. With *GNP* at $400 billion, D_1 would be the demand curve. An increase of *GNP* to $600 billion would shift the demand curve to D_2. If the rate of interest were 2 per cent, the total quantity of money demanded would be $150 billion at *GNP* of $400 billion, and $200 billion at *GNP* of $600 billion.

Adjustments to Disequilibrium. If the quantity of money demanded at the existing level of *GNP* and the effective interest rate is not equal to the available supply, a disequilibrium exists. Adjustments will be set in motion which will tend to equate supply and demand. Suppose the supply of money exceeds the demand. The transactors who have surplus cash may increase their expenditures for current output, which will raise *GNP;* or they may use the excess cash to acquire interest-bearing assets or repay debts, which would tend to reduce interest rates. Higher *GNP* and lower interest rates, separately or in combination, would raise the amount of cash balances people wanted to hold. Ultimately, even if the supply of money remained unchanged, people would become willing to hold the amount in existence. However, some of the excess supply might pass out of existence if people repaid bank debts and the banks did not make an equivalent amount of new loans.

Similar principles would hold if the demand exceeded the existing supply. People who desired to hold more cash might reduce their expenditures for current output, which would reduce *GNP.* Alternatively, they might borrow more heavily, reduce their acquisitions of interest-bearing assets, or even sell such assets, to acquire the cash. These actions would tend to raise interest rates. Lower *GNP* and higher interest rates, separately or in combination, would reduce the quantity of money people wanted to hold, until it became equal to the available supply. However, the excess demand for money might be met by increased supply if demand for bank loans increased and the banks were willing and able to meet the higher demand.

We are most interested in the manner in which the quantity of cash balances demanded adjusts to the available supply. When supply exceeds demand, the efforts of some transactors to reduce their cash holdings merely pass these along to others, as in a game of "Old Maid," until, ultimately, economic conditions change sufficiently to induce people to hold the available supply. When demand exceeds supply, efforts of some transactors to hold more cash reduce the amount available for others. As in a game of musical chairs, all scramble for the insufficient supply until conditions change sufficiently to reconcile them to the limited amount available.

This analysis provides the key to the manner in which changes in the money supply affect economic welfare. For example, *if* an increase in *M* causes a rise in *GNP* expenditures and *if* higher *GNP* brings higher production and employment, then economic welfare will presumably be increased. We have already seen that the second "if" is largely a question of the amount of unemployed resources available. But we must deal with the first "if" and try to determine under what conditions and to what extent a change in the money supply will affect *GNP* expenditures.

Our discussion of adjustments to disequilibrium makes it clear that cash balances bear a complementary relation to the flow of main money circuit transactions and the flow of financial asset transactions. The quantity of cash balances demanded depends on conditions in both areas of transactions, and any disparity between demand for and supply of cash balances will show up as a change in the flow of transactions in one or both of these areas. The relationship is one of mutual determination, of reciprocal interaction, rather than of one-way causation. The same thing is true, as we have already seen, of the links between the main circuit and the financial circulation. Thus we might depict a triangular relationship among these three magnitudes in the following manner:

$$\begin{tikzcd}
 & \text{Demand for money} \arrow[dl, shift right] \arrow[dr, shift left] & \\
\begin{array}{c}\text{Main circuit payments (incomes,}\\ \text{spending, } GNP\text{, demand for}\\ \text{current output)}\end{array} \arrow[ur, shift right] \arrow[rr, shift left] & & \begin{array}{c}\text{Financial circulation (interest}\\ \text{rates, security prices, availa-}\\ \text{bility of credit)}\end{array} \arrow[ul, shift left] \arrow[ll, shift left]
\end{tikzcd}$$

This pattern indicates, for instance, that an increase in the supply of money relative to the quantity demanded might raise *GNP* directly but also might furnish an additional upward impetus by lowering interest rates and easing credit.

So far we have concerned ourselves with two points of the triangle. It is now time to consider the third, at which interest rates and credit conditions are determined. After that, we shall put the three together and consider their interaction as a simultaneous process.

DETERMINATION OF INTEREST RATES

Loanable Funds. We noted in Chapter 5 that there are many types of interest rates. Interest rates paid on savings assets such as time deposits are the rates most relevant to household asset choice. The rates charged by banks on loans will affect borrowing decisions. The open-market yields on bonds and other capital-market securities will affect the decisions of investors and of potential issuers of new securities. The rates prevailing in the money market, particularly on short-term government securities, will affect the cash-balance decisions of large firms and wealthy individuals.

The interaction of these various rates is complex, and full analysis of it is far beyond the scope of this discussion. However, we should note the differing sensitivity of these rates to short-run influences. At one extreme, open-market and short-term money-market interest rates fluctuate daily. At the other extreme, rates on savings assets change infrequently.

However, the historical pattern of these various rates (as depicted in Figure 5-1) makes it clear that they rise and fall together in response to broad influences operating over considerable periods of time. These influences can be most simply described as the demand for and supply of loanable funds.

The demand for loanable funds includes applications to borrow from banks and other lenders and requests for credit from sellers of goods, as well as sales of new securities. It also includes sales of existing financial assets to raise funds. Ultimate borrowers will obtain a large amount of funds from financial institutions such as insurance companies and savings banks. These in turn obtain their funds from the public in exchange for specialized financial obligations such as insurance and savings deposits. Institutions also obtain loanable funds by reinvesting a part of their current income. And banks can create new money to make loans. Besides these factors contributing to the flow of institutional loanable funds, an additional supply of funds arises from purchases of new or existing securities by nonfinancial investors and from repayment of debts incurred in the past.

The gross flow of funds into and out of the markets for loanable funds is very large. However, much of the volume arises from transactions which do not cause any substantial changes in the net supply or demand. For instance, if an investor borrows money to buy stocks, he is neither a net supplier nor demander of loanable funds but merely shuffles them from one sector of the capital market to another.

The movement of interest rates will reflect the relative strength of supply and demand. If the supply of funds increases relative to the demand, competition among lenders will tend to push loan interest rates down. The greater supply of funds will also tend to raise security prices and thus lower open-market interest rates. If the demand for loanable funds increases relative to the supply, lenders will be able to obtain higher interest rates. Security prices will fall and thereby raise open-market interest rates. Let us see what the sources and uses of loanable funds are and why they might change over time.

Sources and Uses of Loanable Funds. All sectors of the economy may contribute to the gross supply of loanable funds by acquiring income-bearing financial assets or by repaying debts. For simplicity, however, we shall treat each sector merely in terms of its net position. Households are commonly net suppliers of loanable funds. Government may be either supplier or demander, but we shall treat it on the supply side also. Business firms are net users of funds, and thus they will be placed on the demand side.

Each sector's role in the loanable-funds market can be expressed by use of the handy budget equation we have been using. This time we arrange the items to isolate those relating to loanable funds, as follows:

$$\begin{bmatrix}\text{Acquisition}\\ \text{of income-}\\ \text{bearing fi-}\\ \text{nancial assets}\end{bmatrix} - \text{borrowing} = \text{income} - \text{expenditure} - \begin{bmatrix}\text{net increase}\\ \text{in cash}\\ \text{holdings}\end{bmatrix}$$

For households, the net supply of loanable funds offered is equal to the amount of earning financial assets acquired minus the amount of borrowing. This net supply will arise from the households' current surplus of income over expenditure to the extent that surplus is not held as increased cash balances. Of course, if households reduce their cash holdings, their supply of loanable funds will exceed their current surplus.

It would be convenient if the surplus of income over expenditure corresponded to personal saving, but in the terminology of the national-income accounts this is not the case. Personal saving in the national-income accounts includes expenditures for housing and for unincorporated-business capital goods, both net of depreciation. Thus total personal saving is equal to household expenditures on capital goods plus net acquisition of income-bearing financial assets (after subtracting borrowing) plus net increase in cash holdings. Isolating the item for supply of loanable funds, we get this result:

$$\begin{bmatrix}\text{Net supply of}\\ \text{loanable}\\ \text{funds by}\\ \text{households}\end{bmatrix} = \text{personal saving} - \begin{bmatrix}\text{household}\\ \text{capital-goods}\\ \text{purchases}\end{bmatrix} - \begin{bmatrix}\text{net increase}\\ \text{in cash}\\ \text{holdings}\end{bmatrix}$$

Government also may be a net supplier of loanable funds. This position will result if the sum of government lending plus payments to redeem the public debt exceeds government borrowing and the repayment of debts by the public to the government. The government can finance such a net supply of funds by a current surplus of taxes over expenditures, by reducing its holdings of cash, or by creating new money. However, since we shall reserve consideration of issuance of new money until we discuss the banking system, we obtain the following relation:

$$\begin{bmatrix}\text{Net supply of loanable}\\ \text{funds by government}\end{bmatrix} = \begin{bmatrix}\text{government ``saving''}\\ \text{(current surplus)}\end{bmatrix} - \begin{bmatrix}\text{net increase in}\\ \text{cash holdings}\end{bmatrix}$$

Often, the government sector will be a negative supplier of funds. If so, its net absorption must be deducted from the amount supplied by households.

Business firms will ordinarily be net demanders of external funds, so that their borrowing and security issues exceed debt repayments and acquisition of noncash financial assets. External financing is obtained chiefly to buy capital goods, and the business demand for loanable funds will reflect the estimated marginal efficiency of prospective investments. The amount of funds firms will want to borrow will therefore vary inversely with interest rates. Not all business investment requires external financing, since reinvested business income can be used. And some funds, whether obtained internally or externally, will be used at times to increase cash holdings. Total business investment may be expressed by

$$I = \begin{bmatrix}\text{net external funds}\\ \text{obtained}\end{bmatrix} + \begin{bmatrix}\text{business disposable}\\ \text{income}\end{bmatrix} - \begin{bmatrix}\text{increased cash}\\ \text{holdings}\end{bmatrix}$$

If we rearrange this, we find that the net amount of loanable funds taken by business is as follows:

$$\text{Net external funds} = \begin{bmatrix}\text{business invest-}\\ \text{ment (capital}\\ \text{goods)}\end{bmatrix} - \begin{bmatrix}\text{business}\\ \text{disposable}\\ \text{income}\end{bmatrix} + \begin{bmatrix}\text{increased}\\ \text{cash}\\ \text{holdings}\end{bmatrix}$$

These three sectors would complete the picture if there were no change in the money supply, but the banking system (including the Federal Reserve banks) may add to the supply of loanable funds by creating new money or deduct from it by reducing the money supply. Thus the total supply of loanable funds is determined by adding the amounts supplied by households, government, and the banking system. If we add all these up, we obtain the following relationship:

Supply of loanable funds: Demand for loanable funds:

$$\left.\begin{array}{l}
\begin{bmatrix}\text{Personal}\\ \text{saving}\end{bmatrix} - \begin{bmatrix}\text{household capital-}\\ \text{goods purchases}\end{bmatrix}\\[1ex]
- \begin{bmatrix}\text{household demand for}\\ \text{increased cash}\end{bmatrix}\\[1ex]
+ \begin{bmatrix}\text{government}\\ \text{saving}\end{bmatrix}\\[1ex]
- \begin{bmatrix}\text{government demand for}\\ \text{increased cash}\end{bmatrix}\\[1ex]
+ \begin{bmatrix}\text{net creation of money}\\ \text{by banking system}\end{bmatrix}
\end{array}\right\} = \left\{\begin{array}{l}
\begin{bmatrix}\text{Business investment}\\ \text{in capital goods}\end{bmatrix}\\[1ex]
- \begin{bmatrix}\text{business disposable in-}\\ \text{come (business saving)}\end{bmatrix}\\[1ex]
+ \begin{bmatrix}\text{business demand for}\\ \text{increased cash}\end{bmatrix}
\end{array}\right.$$

In equilibrium, the supply of funds must equal the demand.

These equations are fine for showing us all the components of supply and demand, but they are quite unwieldy. We can simplify them by shifting items from one side to the other and consolidating them. If we shift business saving to the supply side, it becomes a positive item and is added to personal and government saving to make one item for total saving. When household spending for housing and other capital goods is moved to the demand side, it becomes positive and is added to business investment to make one item for total investment. Shifting business demand for increased cash holdings to the supply side makes it negative and permits consolidation with household and government demands to make one item for the whole economy. The result looks like this:

$$\text{Total saving} + \begin{bmatrix} \text{increase in} \\ \text{quantity} \\ \text{of money} \\ (S_{mt2} - S_{mt1}) \end{bmatrix} - \begin{bmatrix} \text{demand for} \\ \text{increased} \\ \text{cash holdings} \\ (D_{mt2} - S_{mt1}) \end{bmatrix} = \text{total investment}$$

When we express the demand for and supply of money as time-period relations, a further simplification becomes possible. The increase in the supply of money S_m during the period is equal to the total money supply at the end of the period ($t2$) minus the supply at the beginning of the period ($t1$). The demand for increased cash holdings by all transactors represents the amount by which the demand for money at $t2$ exceeds the supply which they held at $t1$. The monetary term in the equation now simplifies to

$$S_{mt2} - S_{mt1} - D_{mt2} + S_{mt1}$$

The two figures for S_{mt1} cancel out, leaving the net monetary contribution to the supply of loanable funds equal to the excess of the total money supply over the demand for it, both measured at time $t2$. Now we shift the demand for money to the demand side, where it becomes positive. When we have finished, we get the following result:

$$\text{Saving} + \text{supply of money} = \text{investment} + \text{demand for money}$$

All items should be interpreted in the ex ante or schedule sense, and the two sides are equal only in equilibrium.

The sum totals in this equation do not now measure the flow of loanable funds, but they will accurately reflect *changes* in the flow, which are what we are mainly concerned with. These sums are expressed in terms which make obvious the direct dependence of the loanable-funds market on the state of the main money circuit (saving and investment) and on the supply of money relative to the demand for cash balances.

Supply and Demand Schedules. The components of loanable-funds supply and demand depend on the level of incomes and *GNP*, on interest rates and credit conditions, and on psychological tastes, expectations, etc. Saving will rise and fall directly with *GNP*. Consumers and business firms will save a stable fraction of income, while government will incur a smaller deficit or larger surplus at higher *GNP*. Saving will also vary directly with interest rates, but not much. At higher interest rates, saving rises because its negative component is smaller. Borrowing by consumers and state and local governments is reduced. Investment spending for capital goods will vary directly with *GNP*. Higher *GNP* will mean a larger amount of income to spend and probably will also raise the estimated marginal efficiency of investment. Investment will vary inversely with interest rates, partly in reflection of the reduced quantitative availability of credit for business firms, partly because higher costs for home-mortgage credit will deter home buyers. The demand for money will vary inversely with interest rates and directly with *GNP*, in accordance with our earlier estimates.

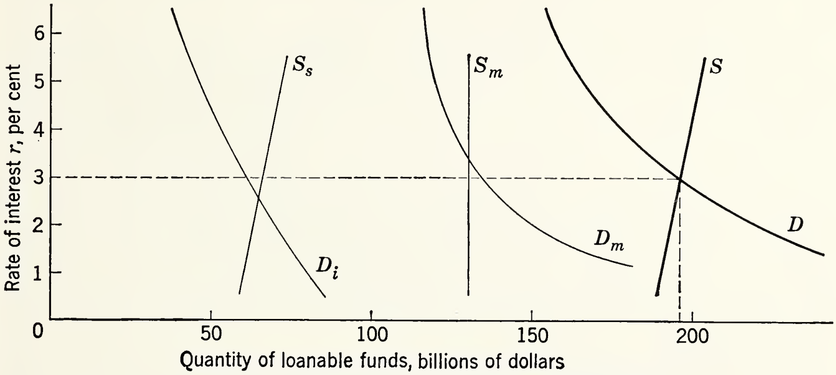

FIG. 8-2. Loanable funds and the rate of interest.

This gives us three items which can be expressed as schedules dependent on *GNP* and the rate of interest. Of course the location of the particular schedules also reflects psychological preferences and expectations. We shall treat these psychological factors as relatively stable influences for the time being but shall subsequently investigate the results to be expected if they change.

As for the supply of money, we shall assume it is determined by Federal Reserve policies and that it does not fluctuate automatically in response to market forces the way the other three variables do.

To show the influence of these forces on interest rates, for the time being let us assume that the level of *GNP* is constant. In Figure 8-2 we have drawn the schedules for savings S_s, investment D_i, and the demand for money D_m as being dependent on the interest rate. The supply of money S_m is drawn as a constant. The total supply of funds S is the horizontal sum of S_s and S_m. The total demand D is the sum of D_i and D_m. The curves are drawn on the assumption that *GNP* is \$400 billion and that the supply of money is \$130 billion.

The quantities of funds demanded and supplied will be equal at an interest rate of 3 per cent. At a lower rate, applications for loans will exceed funds available, and rates will tend to rise. At a higher rate, lenders will not find outlets for available funds. Thus the market for loanable funds is in equilibrium at 3 per cent. However, *GNP* will not be in equilibrium in the situation shown by Figure 8-2. Can you see why? We shall return to this point shortly.

In one respect, this supply-demand analysis is a bit unrealistic. It does not provide any means of dealing with credit rationing. Probably in the real world, the demand for loanable funds is not brought into equilibrium with the supply but remains in excess. Quantitative limitations on the amount available to individual borrowers serve to ration out the funds available. Nevertheless, our supply and demand schedules are essential for analyzing changes in interest rates. Credit rationing does not effectively alter the principle that the level of interest rates will vary directly with the demand and inversely with the supply of loanable funds.

In our diagram, a shift in any of the four component schedules would affect the interest rate. Of particular concern is the effect of an increase in the quantity of money. If this increase occurred through the operation of the banks, it would increase the supply of funds and reduce interest rates. This in turn would have two effects. First, the lower interest rate would encourage people to hold more cash in asset balances. Second, lower interest and easier credit would stimulate higher borrowing and spending. How much of the new money will be drawn into idle balances and how much will be spent depends on the slopes of the curves. If the cash-balance curve D_m is flat and the investment curve D_i is steep, most of the money will go into idle balances and relatively little will be spent. But if the investment curve is relatively flat, so that investment is greatly stimulated, most of the new money will be spent. Clearly, the influence of monetary and credit policy depends upon the relative slopes of these schedules.

The terminology we have used should not be permitted to obscure the influence of government fiscal policy on interest rates. So long as government cash holdings and the money supply remain constant, variations in the relation between government revenues and expenditures will be reflected in the loanable-funds market. An increase in government spending relative to revenue means a reduction in government saving. The government will be borrowing more in relation to its payments for debt retirement, and this will tend to raise interest rates. If government revenues increase relative to expenditures, interest rates will tend to be reduced as government lending or debt retirement increases.

Analysis in terms of Figure 8-2 is complicated by the fact that many of the transactions to be analyzed involve shifts in more than one curve simultaneously. Suppose the government finances deficit spending by creating new money through bond sales to the Federal Reserve banks. The money supply S_m will shift to the right; but the government deficit reduces government saving and moves the S_s curve to the left. As a result, S may stay where it is, and no direct influence on the interest rate may result. Or suppose that consumers reduce current consumption in order to spend more money on housing. This move will increase saving and investment by the same amount, and again no direct effect on the interest rate occurs.

Such simultaneous shifts are confusing until one learns their general pattern. A much greater difficulty, however, arises when we direct our attention to the interaction between the loanable-funds market and the flow of *GNP* expenditures. If we turn back to Figure 8-2, we see that, although the demand for funds is in equilibrium with the supply, saving and investment are not equal at the indicated interest rate. Nor, for that matter, are the supply and demand relating to cash balances equal. Saving exceeds investment, and the demand for cash balances exceeds the money supply. Both relationships tell us that *GNP* expenditures will fall. But three of our four components of supply and demand depend on the level of *GNP*. If *GNP* shifts, these curves will shift also. With lower *GNP*, the supply of saving will be lower, the quantity of cash balances demanded will decline, and the volume of investment spending will also fall. Only the supply of money can be expected to stay put. Because S_m does not fall, D will probably move further to the left than S. The rate of interest will be reduced. Ultimately the component curves may shift into a position of genuine equilibrium, as depicted in Figure 8-3. This corresponds to *GNP* of $360 billion and an interest rate of 2½ per cent. Here there is equality not only between aggregate demand and supply in the loanable-funds market but also within the two components. Saving equals investment, and the demand for money equals the supply. By the nature of things, if two out of the three elements are in equilibrium, the third will be also, but all three must be in equilibrium, or all three will be shifted.

The diagram is useful for showing the conditions which are necessary for equilibrium. It is less useful for showing the process by which equilibrium is achieved, since shifts in the curves may be more important than movements along the existing curves. The trouble is that our schedules are related to more variables than we can conveniently represent in a two-dimensional diagram. A really adequate theory of interest rates must be a general equilibrium theory which shows how both *GNP* and the rate of interest are simultaneously determined by the basic desires of the public to spend, borrow, and hold assets. Such a theory is developed in Chapter 9.

This approach to interest-rate determination represents a synthesis of doctrines widely accepted in the past. Nineteenth century economists treated interest rates as determined by saving and investment. Later it became recognized that variations in the money supply would also be a factor, at least temporarily. It remained for Keynes to assert, in his "liquidity-preference" theory of interest rates, that the demand schedule for money was an important influence. The differences lay mainly in emphasis. There is no reason not to concede the relevance of both sets of determinants. Furthermore, in order for a true equilibrium to exist, there must be equality between saving and investment and between the supply of money and the demand for it.

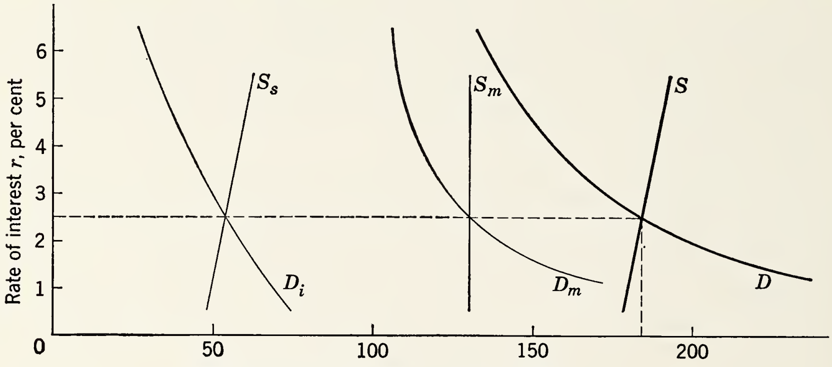

FIG. 8-3. The loanable-funds market in general equilibrium.

INTEREST RATES, BORROWING, AND SPENDING

Importance. The sensitivity of investment and other expenditures to variations in credit conditions is of great importance to monetary policy. If spending is sensitive to credit and interest rates, monetary policy may be able to exercise a stabilizing influence on *GNP* by means of relatively small changes in the money supply and interest rates. If spending is insensitive, the necessary changes in money and credit may be so large that they cannot effectively be used.

We reviewed in Chapter 7 some evidence on the credit sensitivity of various types of expenditure. We found that, in general, housing expenditure was quite sensitive, business investment somewhat sensitive, consumption and state and local spending slightly but at times appreciably sensitive, and Federal government spending probably totally insensitive. Expenditures respond to changing credit conditions either through changes in the willingness to borrow when costs of borrowing change or through changes in the ability to borrow when quantitative limits on credit availability fluctuate.

Evidence on Borrowing. It is useful to have some idea of the actual variations in borrowing which have been associated with recent interest-rate variations. Table 8-3 presents data on the estimated amount of external financing by consumers, business, government, and foreign borrowers compared with *GNP* and the interest rate.

Table 8-4

Borrowing, Interest Rates, and GNP, 1947–1958

(Dollar totals in billons)

Year	*Total borrowing*	*GNP*	*Borrowing as per cent of GNP*	*Interest rate (U.S. long-term), per cent*
1947	$23.8	$234	10.2	2.25
1948	20.5	259	7.9	2.44
1949	14.5	258	5.6	2.31
1950	24.2	285	8.5	2.32
1951	23.2	329	7.1	2.57
1952	28.0	347	8.1	2.68
1953	25.9	365	7.1	2.94
1954	23.0	363	6.3	2.55
1955	35.0	398	8.7	2.84
1956	32.1	419	7.7	3.08
1957	29.8	443	6.7	3.47
1958	37.2	442	8.4	3.43

Note: Borrowing includes: (1) consumer credit and mortgage borrowing, but not security credit; (2) business borrowing and security issues, except trade credit; (3) government borrowing, net of lending; and (4) foreign borrowing, not including direct investment. Negative items for individual sectors were omitted.

SOURCES: *Federal Reserve Bulletin,* August, 1959; Federal Reserve mimeographed money-flow data; *Economic Report of the President,* 1959.

Some significant features emerge from these data. First, there is no pronounced downward trend in the ratio of borrowing to *GNP,* despite the pronounced upward shift in interest rates after 1950. During 8 of the 12 years, borrowing was between 7 and 9 per cent of *GNP*. This substantiates the idea that rising *GNP* generates a higher demand for loanable funds. Borrowing dipped more than *GNP* in recession years

1949 and 1954 and rose more in the recovery years 1950 and 1955, behavior that suggests a sort of acceleration relationship.

It is not easy to discern from the table any relation between short-run variations in borrowing and in interest rates. Careful scrutiny, however, reveals an interesting pattern. This is brought out by Figure 8-4, which plots the amounts of borrowing at different rates of interest.

As a rule, we would expect the demand schedule for funds to be rising or constant during a period when *GNP* is rising. However, we find several time segments in the period 1947–1958 during which *GNP* rose, yet borrowing fell. Furthermore, these were segments during which interest rates rose. This suggests that the reduction in borrowing reflects the influence of credit restraint.

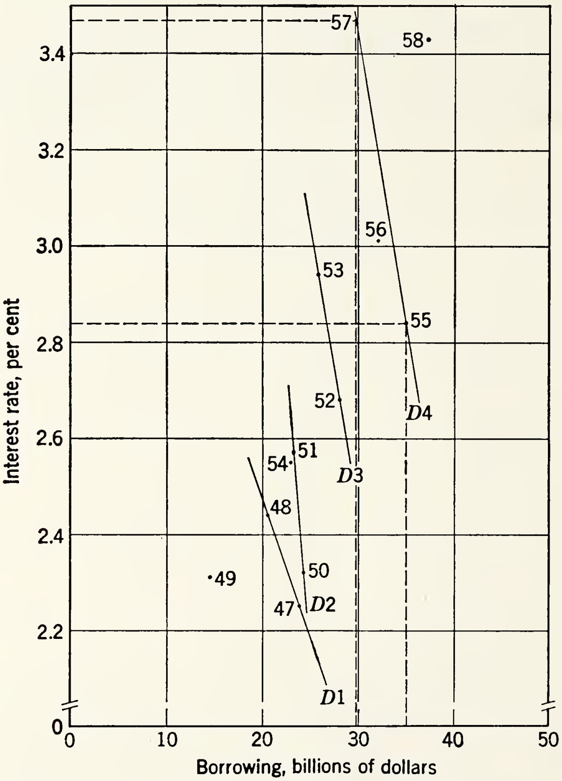

FIG. 8-4. Interest rates and borrowing, 1947–1958. (Data derived from Table 8-4.)

We have shown this in Figure 8-4 by linking several time-segment entries. The line D_1 is drawn through 1947 and 1948, D_2 through 1950 and 1951, and D_3 through 1952 and 1953. D_4, drawn through 1955 and 1957, passes very close to 1956 as well. These *D* curves reflect in a rough way the demand schedules for loans. As drawn, they imply that the demand curve stayed constant for two or more years and then shifted to another level, which is probably not correct. Aside from that problem, these lines are not true demand curves because they cannot be taken to measure the amount people wanted to borrow at any given interest rate. The data on borrowing reflect the influence of credit rationing as well as willingness to borrow.

Notwithstanding these shortcomings, it is our contention that the reduction in borrowing along each of these four lines is a measure of the influence of high interest rates and credit rationing. This conviction is confirmed by the similarity in slope of three of the lines and the fact that their horizontal distances roughly reflect the differences in *GNP* levels corresponding to the different time segments.

The movements along D_3 and D_4 give us an idea of the amount of credit restraint associated with a given rise of interest rates. In 1952–1953, interest rates rose 9 per cent of their average for the two years, producing an 8 per cent cut in borrowing. The ratio between these gives an elasticity of about 0.9. In 1955–1957, interest rates rose 20 per cent, and borrowing fell 16 per cent, for an elasticity of 0.8. In 1955–1957, a change of 0.5 per cent in interest rates (e.g., from 2.9 to 3.4 per cent) on United States securities was associated with a reduction in borrowing of about $4 billion.

The impact of credit restraint on spending was probably somewhat less, because of the ability of business firms and consumers to reduce their holdings of financial assets below levels they would have held if more credit had been available. However, by the late 1950s there was not much idle cash available, and disposition of other financial assets was deterred by high interest rates and, in some cases, low market prices. As a guess, the cut in spending might be three-fourths as large as the cut in borrowing—thus a 0.5 per cent rise in interest rates would have cut spending directly by about $3 billion in 1955–1957. (The cut is measured against what would have been spent.) The total impact on *GNP* would of course depend on the multiplier reactions. A $3 billion cut in investment might well mean that *GNP* spending within a year or two would be $6 billion to $10 billion lower than it would have been had the initial interest rate been maintained.

Our analysis throws no light on the stimulus to investment resulting from easy credit in recessions. The best direct evidence is the behavior of home-construction borrowing, which rose by slightly over $1 billion in recession years 1954 and 1958 in response to easier credit terms. This corresponds with our finding in Chapter 7 that construction spending rose relative to *PDI* in the recession years. The impact of easy credit on total investment may thus be estimated at something over $1 billion.

SUMMARY AND CONCLUSIONS

There is a triangular relationship among the income-spending relations in the main money circuit, the state of interest rates and credit conditions, and the relation of the supply of money to the demand for it. Each of the three is influenced by the other two and in turn exerts an influence on them.

The quantity of cash balances which people will want to hold reflects their need for transactions balances, as an active medium of exchange, and for asset balances, as a liquid store of value. In the short run, the quantity of transactions balances required varies directly with the level of *GNP*, while the quantity of asset balances desired varies inversely with interest rates. The demand schedule for money in the 1950s was approximately

$$D_m = \frac{GNP}{4} + \frac{\$100 \text{ billion}}{r}$$

If the quantity of money available is not equal to the amount demanded, there will be repercussions on *GNP* and on interest rates which will eventually reconcile people to hold the quantity of money available. A rise in the money supply would ordinarily produce some combination of higher *GNP* and lower interest rates. What the combination will be depends on how the monetary increase comes and on how large are such variables as the interest sensitivity of investment and of the demand for money, and the multiplier effect.

Interest rates and the availability of credit depend on the supply of and demand for loanable funds. Funds are supplied either out of current saving, reductions in cash holdings, or creation of new money. Demand for funds arises chiefly from the incentive to invest in capital goods. Ultimately, the supply of loanable funds varies directly with saving and the supply of money, while the demand for funds varies directly with investment and the demand for money. Interest rates will tend to rise if supply falls or demand increases and to fall if supply rises or demand declines.

Interest rates and credit conditions may be the medium through which changes in the money supply affect the economy. If the new money enters the credit supply through bank lending, it will tend to reduce interest rates and raise investment, the precise result depending on the relative interest sensitivity of investment and of the demand for money.

As an illustration, our data suggest that during a year of relative prosperity in the 1950s an increase in the money supply of $5 billion in loanable funds would have been sufficient to reduce interest rates from

3.15 to 2.85 per cent. At the lower rate, about $3.3 billion would have been absorbed into additional idle balances and $1.7 billion in additional investment.

However, such actions would set off a series of repercussions on *GNP*. Higher investment would produce a multiplier increase in *GNP*, which would tend to raise the supply of saving, the demand for investment, and the demand for transactions money. These repercussions might pull the interest rate back up somewhat, a change which would mean still further repercussions in the other magnitudes. In the end, each of the major variables is determined by the others, as we shall see in more detail in the next chapter.

QUESTIONS FOR STUDY

1. Suppose all business payments were made monthly and all consumers spent their incomes during the month. Each transactor holds cash solely to carry on its main money circuit transactions. There are no money substitutes. Look back to Table 5-1 and then try to estimate demand for transactions balances as a proportion of *GNP*.
2. How would one recognize an increase in the demand for money if it took place? Explain how such an increase might affect *GNP*, interest rates, and the money supply.
3. "In 1953, when the interest rate was 2.94 per cent, borrowing was $26 billion. In 1954, when the interest rate fell to 2.55 per cent, borrowing fell to $23 billion. Then in 1955, with interest up to 2.84 per cent, borrowing jumped to $35 billion. This proves that people borrow more at higher interest rates." Do you agree? How would you interpret the data (which are from Table 8-3)?
4. What is meant by the availability of credit? Why is it important?
5. Variations in interest rates may occur in response to variations in saving and investment. Explain how and under what conditions an increase in the propensity to save would lower interest rates directly. Even if the higher saving desire does not increase the supply of loanable funds, it might indirectly produce a decline in the interest rate. Explain this possibility.

SUGGESTED READINGS

Fisher, Irving: *The Theory of Interest*, The Macmillan Company, New York, 1930.

Tsiang, S. C.: "Liquidity Preference and Loanable Funds Theories, Multiplier and Velocity Analyses: A Synthesis," *American Economic Review*, September, 1956.

CHAPTER 9

MONEY, SPENDING, AND WELFARE: A SYNTHESIS

INTRODUCTORY

In explaining the behavior of expenditures for current output and their relation to money and credit, we have first examined the manner in which each transactor adjusts its expenditures, assets, and liabilities to "given" conditions of incomes, interest rates, and credit availability. In doing this, we have found useful the budget equation for each transactor, of which the following is one formulation:

$$\text{Income} + \text{borrowing} = \text{expenditures} + \begin{bmatrix}\text{increased}\\ \text{cash}\\ \text{holdings}\end{bmatrix} + \begin{bmatrix}\text{increased hold-}\\ \text{ings of other}\\ \text{financial assets}\end{bmatrix}$$

Access to incomes and credit may be beyond the control of individual consumers or business firms. Their problem is how to divide receipts among the categories on the right and how to rearrange the composition of their existing assets. Therefore the flow of income and the ease of credit will strongly influence the volume of expenditures and asset acquisition by each transactor. Interest rates will also affect the manner in which it divides its holdings of financial assets between cash and income-bearing assets. But the precise effects of income, interest rates, and credit conditions will reflect the psychological preferences and expectations of the transactors.

These decisions by individual transactors determine in turn the flow of income and loanable funds for the economy as a whole. Conditions which are "given" for individual transactors, in the sense that no individual transactor can alter them, become variable for the economy as a whole. Spending decisions react with incomes in the manner depicted by the multiplier and the acceleration principle. Decisions to borrow or hold income-bearing financial assets determine interest rates and credit conditions.

We have observed that income and expenditures, loanable-funds supply and demand, and money supply and demand can be regarded as having a triangular relation to each other. Figure 9-1 shows this symbolically.

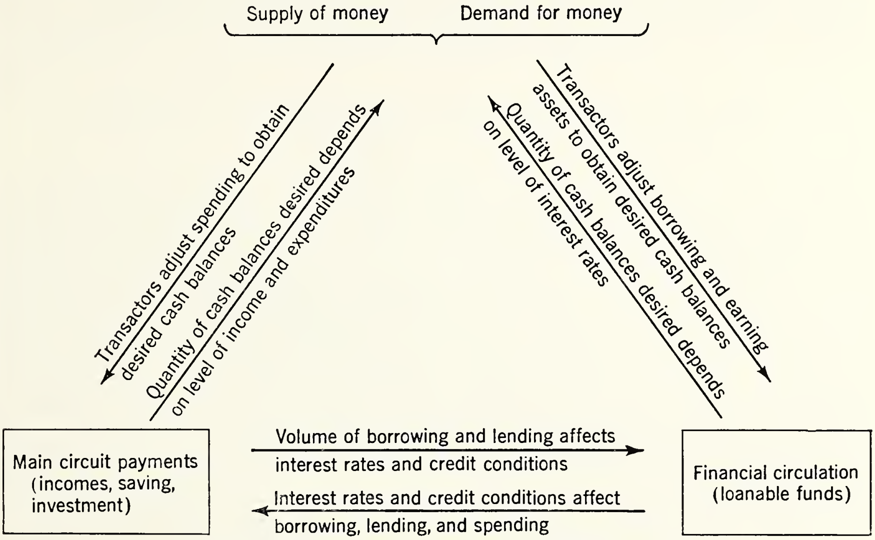
Supply of money
Demand for money
Transactors adjust spending to obtain desired cash balances
Quantity of cash balances desired depends on level of income and expenditures
Transactors adjust borrowing and earning assets to obtain desired cash balances
Quantity of cash balances desired depends on level of interest rates
Main circuit payments (incomes, saving, investment)
Volume of borrowing and lending affects interest rates and credit conditions
Interest rates and credit conditions affect borrowing, lending, and spending
Financial circulation (loanable funds)

FIG. 9-1. Money, loanable funds, and spending.

When income and interest rates become variables, the factors which remain as "ultimate" determinants of the economic process are the various psychological tastes and expectations of individuals and business firms. However, even these may be influenced by the behavior of the economy. Expectations, particularly the estimates of the marginal efficiency of investment, are likely to be affected by changes in current economic conditions. Thus it is very likely that everything will depend on everything else.

GENERAL EQUILIBRIUM ANALYSIS

An Arithmetic Example. The process by which these economic quantities are mutually determined can be illustrated numerically. The following example uses numerical coefficients based on some of the statistical materials we have used in the previous chapters. We assume that the basic pattern of consumer and business psychology and expectation is such that the following relations hold:

$$C_{t2} = 0.9\,PDI_{t1}$$
$$BDI_{t1} = 0.1\,GNP_{t1}$$
$$T_1 \text{ (taxes)} = 0.2\,GNP_{t1} \qquad \text{(government transfers} = 0)$$

Consequently $PDI_{t1} = 0.7\,GNP_{t1}$ and $C_{t2} = 0.63\,GNP_{t1}$

$$I_{t2} = BDI_{t1} + \frac{\$60 \text{ billion}}{r_{t1}}$$

where r is the rate of interest. Thus $I_{t2} = 0.1\,GNP_{t1} + (60/r_{t1})$

$$G_{t2} = \$40 \text{ billion} + 0.5\,T_{t1}$$

$$D_{mt1} \text{ (demand for money)} = 0.25\,GNP_{t1} + \frac{\$100 \text{ billion}}{r_{t1}}$$
$$S_m \text{ (amount of money)} = \$130 \text{ billion}$$

We are treating investment as varying directly with the level of business disposable income and inversely with the rate of interest. Dependence on *BDI* makes investment vary directly with the level of *GNP*. Acceleration effects are ignored; sensitivity of consumption or government expenditure to credit conditions is ignored; and it is assumed that variations in the availability of credit are adequately reflected in changes in interest rates. Government expenditures fluctuate with tax revenues, but the response is less than proportional.

For the economy to be in equilibrium, three conditions must be met. First, *GNP* must be in equilibrium, with saving ex ante equal to investment and with GNP_{t1} equal to GNP_{t2}. Second, the demand for money must be equal to the existing quantity. Third, the demand for loanable funds ex ante must equal the supply ex ante. Each of these three relations can be expressed in an equation containing two unknowns, *GNP* and the interest rate. However, any two of the equations determine the third. We can use any pair of them to find the equilibrium values, and the third equation will be consistent with the result.

The first equation states the equilibrium condition for *GNP* and is derived as follows:

$$\begin{aligned}
GNP_{t1} &= GNP_{t2} \\
GNP_{t1} &= C_{t2} \qquad\qquad + I_{t2} \qquad\qquad\qquad + G_{t2} \\
GNP_{t1} &= 0.63\,GNP_{t1} + 0.1\,GNP_{t1} + \frac{60}{r_{t1}} + 40 + 0.1\,GNP_{t1} \\
0.17\,GNP_{t1} &= \frac{60}{r_{t1}} + 40 \\
GNP_{t1} &= \frac{353}{r_{t1}} + 236 \qquad (1)
\end{aligned}$$

The second equation is derived by setting the demand for money equal to the supply:

$$130 = 0.25\,GNP_{t1} + \frac{100}{r_{t1}}$$

$$GNP_{t1} = 520 - \frac{400}{r_{t1}} \qquad (2)$$

We can also derive a loanable-funds equation. However, it is merely a restatement of relations given by equations (1) and (2), and we do not need it to find the equilibrium solution. Therefore we shall postpone considering the loanable-funds relation until a little later.

Setting equations (1) and (2) equal to each other, we can solve for r:

$$\begin{aligned} \frac{353}{r_{t1}} + 236 &= 520 - \frac{400}{r_{t1}} \\ \frac{753}{r_{t1}} &= 284 \\ r_{t1} &= 2.65 \text{ per cent} \end{aligned}$$

Next we substitute this value for r in equation (2):

$$GNP_{t1} = 520 - \frac{400}{2.65} = 369$$

To see if the economy will be in equilibrium with GNP of \$369 billion and interest at 2.65 per cent, we must calculate the various components, as follows:

$$\begin{aligned} &GNP_{t1} && = \$369 \\ &\text{Taxes}_{t1} = 0.2 \times 369 && = \$\ 74 \\ &BDI_{t1} = 0.1 \times 369 && = \$\ 37 \\ &PDI_{t1} = 369 - 74 - 37 && = \$258 \end{aligned}$$

$$\text{Personal saving ex ante} = 0.1 \times 258 = \$26$$

$$\begin{aligned} &C_{t2} = 258 - 26 && = \$232 \\ &I_{t2} = 37 + 60/2.65 && = \quad 60 \\ &G_{t2} = 40 + {}^{74}\!/_{2} && = \quad \underline{77} \\ &GNP_{t2} && = \$369 \end{aligned}$$

Thus our GNP components are in equilibrium, and GNP_{t2} will stay at the same level as GNP_{t1}. We can also compare the demand for money with the supply:

$$D_m = \frac{369}{4} + \frac{100}{2.65} = 92 + 38 = 130 = S_m$$

We can also show that the supply of saving ex ante will be equal to investment. The supply offered is the sum of ex ante saving of persons, business, and government out of GNP_{t1}. This is composed of the following items:

$$\begin{aligned}
&\text{Personal saving ex ante} = 0.1\,PDI_{t1} = 0.07\,GNP_{t1}\\
&\text{Business saving ex ante} = BDI_{t1} = 0.1\,GNP_{t1}\\
&\text{Government saving ex ante} = T_{t1} - 0.5\,T_{t1} - 40 = 0.1\,GNP - 40\\
&\quad\text{Total saving ex ante} = 0.27\,GNP_{t1} - 40 = \$60\text{ billion}
\end{aligned}$$

In equilibrium, this will be matched by the amount people want to invest at the existing level of *GNP* and the effective interest rate.

$$I_{t2} = 0.1\,GNP_{t1} + \frac{60}{r_{t1}} = 37 + 23 = \$60\text{ billion}$$

The total market for loanable funds is simply the sum of the money and saving-investment equations. The supply of funds equals the supply of saving plus the quantity of money, while the demand for funds equals the demand for cash balances plus the demand for investment. Both sides total $190 billion, from our previous equations.

Adjustments to Changing Data. The equilibrium situation depicted in these figures depends on the values for all the underlying data—the propensity to consume, the marginal efficiency of investment, the division of income, the role of government, the demand for money, and the supply of money. Changing one or more of these underlying data would change both *GNP* and the rate of interest.

Since we are mainly interested in money, let us see what would be the effects of an increase in the supply of money. First we must note how the increase occurs. If it is introduced through monetary policy and enters the market for loanable funds, the effect will be different from the result if the new money enters the spending stream directly, as through a government deficit. We shall examine both cases to illustrate the difference.

Let us assume that the quantity of money is increased by $10 billion, to a total of $140 billion, through purchases of government securities in the open market by the Federal Reserve and commercial banks. This increase will tend to raise security prices and reduce interest rates. Higher security prices may encourage increased issues of new securities, while lower interest rates for loans will encourage increased borrowing for investment. However, the lower interest rates will also increase the quantity of cash demanded for asset balances. These are the initial effects.

Next, the higher investment will raise *GNP* and set off multiplier effects. In our example, consumption, investment, and government purchases are all determined partly by income, and all will therefore rise. This raises *GNP* further. With higher *GNP*, both the supply of savings and the demand for investment will increase. Higher *GNP* will also raise the demand for transactions cash balances. These secondary effects will alter supply and demand in the loanable-funds market, and the rate of interest may change again. But changing the interest rate will bring about further repercussions on investment and the demand for money, and so on.

Table 9-1 shows the effects of the increased money supply. The data are arranged by time periods, so that they show the initial impact of the increase in *M*, the way in which the effects spread through the system, and the final equilibrium value where all the secondary effects have been reconciled.

Before we can work out the pattern of response, we need to know something more about how the interest rate is determined. Let us suppose that the interest rate r_{t1} is determined at the end of period *t*1 and in turn influences the quantity of cash balances held over into period *t*2 and the level of investment spending in *t*2. We shall treat r_{t1} as determined by loanable-funds supply and demand as they exist at the end of period *t*1. The supply of funds arises out of income in period *t*1 but is used for spending in period *t*2. It is equal to $0.27\ GNP_{t1} - 40 + S_{mt1}$ and is not affected directly by the interest rate. The demand for funds for investment and cash balances equals $0.35\ GNP_{t1} + 160/r_{t1}$. Given GNP_{t1}, the demand is a schedule dependent on r_{t1}, which is not yet determined. We shall assume that r_{t1} will achieve whatever level is needed to equate the demand for funds with the supply available. We can set supply and demand equal to each other and determine what level of r_{t1} is needed to produce such equality.

$$0.27\ GNP_{t1} - 40 + S_{mt1} = 0.35\ GNP_{t1} + \frac{160}{r_{t1}}$$

$$S_{mt1} - 0.08\ GNP_{t1} - 40 = \frac{160}{r_{t1}}$$

$$r_{t1} = \frac{160}{S_{mt1} - 0.08\ GNP_{t1} - 40} = \frac{2{,}000}{12.5\ S_{mt1} - 500 - GNP_{t1}}$$

This equation shows how r_{t1} is determined by the interaction of the quantity of money and the level of *GNP* in period *t*1. It shows that the interest rate will be lower, the larger the quantity of money, but that it will be higher, the higher the *GNP*.

To follow the sequence of events in Table 9-1, start at the top of period *t*1 and read down. In succession are shown expenditures, the incomes resulting from them, and the cash-balance and loanable-funds supplies and demands arising from the other conditions of the period. These determine the interest rate. Next move to the top of period *t*2, where the events of the next period follow in the same sequence.

Table 9-1
Adjustments to Increased Money Supply: Part 1

(Billions of dollars)

	1	2	3	4	. . .	*E*
C	$232.5	$232.5	$232.5	$234.8	. . .	$244
I	59.5	59.5	63.4	63.6	. . .	65
G	76.9	76.9	76.9	77.3	. . .	79
GNP	$369.0	$369.0	$372.8	$375.7	. . .	$388
T	73.8	73.8	74.6	75.2	. . .	78
BDI	36.9	36.9	37.3	37.6	. . .	39
PDI	$258.3	$258.3	$260.9	$262.9	. . .	$271
PS (ex ante)	$ 25.8	$ 25.8	$ 26.1	$ 26.3	. . .	$ 27
Total *S* (ex ante)	59.5	59.5	60.7	61.4	. . .	65
I (ex ante, old *r*)	59.5	59.5	63.8	63.9	. . .	65
S_m	130	**140**	140	140	. . .	140
D_m	130	130	137.4	137.7	. . .	140
Supply of loanable funds (ex ante)	189.5	199.5	200.7	201.4	. . .	205
Demand for funds (ex ante, old *r*)	189.5	189.5	201.2	201.6	. . .	205
r	2.65%	2.26%	2.28%	2.29%	. . .	2.32%

$$r = \frac{2{,}000}{12.5S_m - 500 - GNP}$$

The process of change begins in period 2, when the money supply increases. This raises the supply of loanable funds above the demand and reduces the interest rate to 2.26 per cent. In period 3, the lower interest rate raises investment by about $4 billion, which increases *GNP* expenditures and all types of income. Ex ante saving rises in response to the higher incomes but is still well below ex ante investment. Higher *GNP* and a lower interest rate increase the quantity of cash balances demanded to about $137 billion, but this does not absorb the full money supply. The market for loanable funds is almost in balance, but the demand for funds has risen so much that it very slightly exceeds the supply. As a consequence, the interest rate now moves up slightly.

In period 4 consumption increases in response to the higher income of the previous period. Investment and government purchases rise slightly in response to higher incomes. Consequently, total *GNP* and gross incomes rise by about $3 billion. Ex ante saving moves closer to investment, and the demand for money rises a bit more. Still the demand for loanable funds exceeds the supply, and the rate of interest rises again.

From here on, it is merely a process of small additional changes of the type already described. Ultimately the economy approaches a new equilibrium with *GNP* of \$388 billion and an interest rate of 2.32 per cent. The increase in S_m of \$10 billion raised *GNP* by \$19 billion through investment and the multiplier effect. Ultimately, of the \$10 billion of new money, about \$5 billion is absorbed into idle balances in response to the lower interest rate, while the other \$5 billion is required for additional transactions balances attending the higher level of *GNP*.

Let us review the factors determining the effect of the monetary increase on *GNP*.

1. The degree to which the interest rate falls when S_m is increased depends on the interest sensitivity of the demand for and supply of loanable funds. If these curves are steep and inelastic, the interest rate will drop substantially. If the curves are flat, there will not be much decline. In our example, the critical relations are those of investment and the demand for money.

2. The degree to which investment is stimulated by the increase in S_m depends on the relative sensitivity to interest rates of investment and the demand for money. In our example, when S_m increased \$10 billion and the interest rate declined to 2.26 per cent, the new money was divided between \$6 billion of added idle cash balances and \$4 billion of added investment. The more sensitive investment is to interest rates and credit conditions, relative to the demand for asset money, the bigger the effect of increased S_m on *GNP*.

The sensitivity of investment depends on the expected marginal efficiency of investment. If business is booming, technology improving, and existing productive capacity inadequate and rapidly wearing out, most firms will be eager to expand investment when additional funds become available. If expectations are pessimistic and existing capacity quite adequate for immediate production needs, there may be little inclination to use additional funds for investment.

The sensitivity of demand for idle money will depend partly on the level of interest rates existing to begin with. If rates are already low, a small additional reduction may cause a large increase in idle cash holdings. At low rates, there is little incentive for investors to acquire earning assets. If they are also pessimistic about risks on noncash assets or expect them to fall in price, their demand schedule for idle balances may be very elastic with respect to interest-rate reductions.

Both schedules may thus depend on the state of expectations and on current conditions. During a period of prosperity, investment will absorb more funds and not much will be added to idle balances; but if the economy is seriously depressed, most of the money may simply go into idle balances.

3. The effect of higher investment on *GNP* depends chiefly on the propensity to consume and the degree to which other transactors increase their expenditures in response to higher incomes. In our example, the initial increase of investment by $4 billion raised *GNP* in the new equilibrium by $19 billion. The higher the expenditure induced by rising income, the larger the ultimate impact on *GNP* of a given initial expenditure increase.

4. The effect of rising *GNP* on the interest rate depends on how sensitive loanable-funds supply and demand are to *GNP* changes. This sensitivity reflects the shape of the schedules for saving, investment, and the demand for money. In our example, rising *GNP* causes the demand for loanable funds to rise more than the supply, which in actuality seems to be the usual pattern. This means that some restraint will be imposed on the rise of *GNP* by tightening of credit. In our example, this "feedback" is not very substantial. It is measured by the rise of the interest rate from 2.26 to 2.32 per cent. This rise causes investment to be about $0.6 billion below the level it would have reached at *GNP* of $388 billion had the interest rate remained at 2.26 per cent.

Adjustment to Fiscal Policy. In our previous example, the quantity of money was increased in the loanable-funds market, and the level of *GNP* expenditures rose when easier credit stimulated spending. However, the new money could come into the *GNP* expenditures stream directly. One method would be for the government to engage in deficit spending financed by new money, perhaps borrowed from the banks or the Federal Reserve. Let us start from our initial equilibrium position, with the same data, and see what happens if S_m rises by $10 billion accompanied by a rise of $10 billion in government purchases. The results are shown in Table 9-2.

This time we get quite a different result. In period 2, the higher government expenditure raises *GNP* directly by $10 billion, and incomes rise correspondingly. Private saving ex ante rises, but the big increase in the government deficit causes total saving to fall markedly. The higher *GNP* absorbs some funds into transactions balances, but the total demand for money falls far short of the supply. The aggregate effect of these changes is to raise both the demand for and supply of loanable funds. The demand goes up slightly more, however, with the result that the interest rate begins to rise.

In period 3, all three sectors react to their higher incomes by spending more, and *GNP* and incomes rise by $8 billion. By the end of the period the quantity of cash balances demanded has risen again (despite the higher interest rate), and the supply of loanable funds is closer to the demand. But the demand is still above the supply, and consequently the interest rate rises again. Subsequent periods would show similar reactions on a smaller scale.

Eventually, equilibrium is reached with *GNP* of $419 billion and an interest rate of 2.83 per cent. The rise in the money supply of $10 billion increased *GNP* by $50 billion. This reflected the upward impetus of the high propensity to spend out of income by all sectors, offset in part by the tightening of credit which resulted from higher demand for loanable funds. The higher level of *GNP* absorbs $12.5 billion in transactions balances, more than the initial monetary increase. Higher interest rates are the means by which $2.5 billion is drawn out of idle balances.

Table 9-2

Adjustments to Increased Money Supply: Part 2

(Billions of dollars)

	1	2	3	...	*E*
C	$232.5	$232.5	$238.8	...	$264
I	59.5	59.5	60.3	...	63
G	76.9	**86.9**	87.9	...	92
GNP	$369.0	$379.0	$387.0	...	$419
T	73.8	75.8	77.4	...	84
BDI	36.9	37.9	38.7	...	42
PDI	$258.3	$265.3	$270.9	...	$293
PS (ex ante)	$ 25.8	$ 26.5	$ 27.1	...	$ 29
Total *S* (ex ante)	59.5	52.2	54.5	...	63
I (ex ante, old *r*)	59.5	60.5	61.1	...	63
M	130	**140**	140	...	140
D_m	130	132.7	134.1	...	140
Supply of funds	189.5	192.2	194.5	...	203
Demand for funds	189.5	193.2	195.2	...	203
r	2.65%	2.68%	2.71%	...	2.83%

$$r = \frac{2{,}000}{12.5M - 625 - GNP}$$

Note: This equation differs from that in Table 9-1 because the change in the government expenditure figure changes the supply schedule of loanable funds.

It is instructive to compare the results of deficits financed by new money with those occurring if the deficit was merely financed by borrowing from the public through the normal channels of loanable funds. An increase in government expenditures of $10 billion financed by borrowing from the public would drive interest rates up sharply. *GNP* would still rise, but its new equilibrium level would be only $401 billion, contrasted with $419 billion when new money was used. The difference is reflected in the interest rate, which rose only to 2.83 per cent when new money was used, but goes to 3.35 per cent when the deficit is financed by borrowing from the public.

The relevance of this analysis to fiscal policy is not hard to see. Government deficits (like any deficits) tend to raise interest rates. If the government wants to avoid higher interest rates during a period of war or emergency requiring large deficits, it must increase the money supply. And if rising *GNP* stimulates private demands for loanable funds, the government must increase S_m by more than its own deficits!

Increases in government expenditures relative to taxes are likely to raise *GNP* no matter how they are financed. If the economy is near full employment, the result will be to push prices up. (We repeat that it is the *change* in expenditures relative to taxes, not the surplus or deficit as such, which exerts the influence both on *GNP* and on the loanable-funds market.) The two examples given make it quite clear that financing with new money is more inflationary. However, this conclusion is based on the assumption that private spending is not restrained artificially, as it might be with wartime controls.

Bank Loans and Other Changes. We have dealt with the effects of two types of monetary increase, but the types are both somewhat extreme. Most increases in the money supply come through the expansion of demand deposits attending expansion of bank loans and security holdings. The difficulty in analyzing this situation is that it makes quite a difference how the new money is allotted between loans and securities. Loans generally go to people who will spend the money. If banks create $10 billion and lend this amount to business firms for investment, the increase in *GNP* may well be on the same scale as the fiscal-policy example shown in Table 9-2. If the banks divide their funds evenly between loans and securities, some of the money spent for securities will probably be held idle, and *GNP* will not rise as much, although the rise will still probably exceed that shown in Table 9-1, in which example all the new money went for government securities.

There is no need, however, to try to explore all the permutations and combinations of possibilities. We can simply add to the several considerations noted on pages 213–214 the idea that the upward influence on *GNP* resulting from a given increase in the money supply will be greater, the greater the proportion of new money arising out of bank *loans* as opposed to securities. This proportion will depend on the expectations and risk attitudes of the banks and also on the demand for loans by prospective spenders. During prosperity the banks are likely to prefer loans; during a recession, they buy more securities.

We should also briefly give attention to the consequences of other changes in the underlying data. Shifts in the marginal efficiency of capital, for instance, are fairly common. Suppose an improvement in the business outlook raised the investment level (starting from the initial equilibrium) to equal $BDI + 100/r$. The higher rate of investment would raise *GNP* and set off the multiplier effect, but the increased demand for loanable funds would cause credit to tighten and interest rates to rise. This reaction would hold down the size of the multiplier effect.

If marginal efficiency rose as assumed, investment would rise initially about $15 billion. The new equilibrium level toward which *GNP* would head would be $405 billion, and the interest rate would rise to 3.48 per cent. At the new equilibrium, investment is $69 billion, which is not much more than it was for the old equilibrium, even though income and marginal efficiency are both higher. The result is similar to that produced by the government deficit financed by borrowing from the public.

This example illustrates an important point about the interaction of the main money circuit (*GNP*) with the loanable-funds market. So long as the supply of money and the demand schedule for money remain constant, any change in spending incentives in main circuit transactions will set off changes in credit conditions which reduce the cumulative movements of *GNP*. However, the offset is not complete. In the marginal efficiency example, tightening credit operated to reduce substantially the size of the multiplier but did not prevent it from operating. The reason the two types of transactions are not entirely balancing is that the quantity of money demanded for asset balances acts as a lubricant which enables one transactions area to rise or fall without a corresponding change in the other. This lubricating action shows up in the loanable-funds market. In the marginal efficiency example, the added demand for loanable funds was met in part by drawing funds out of idle balances, until higher *GNP* ultimately brought saving up to the level of investment.

The manner in which the loanable-funds market acts to reduce cumulative expenditure changes is also apparent if we examine the effects of an increase in the propensity to save by consumers. We shall hold the demand schedule for cash balances constant, thereby implying that all the increased saving is used to supply loanable funds. Of course, the increase in saving means a cut in consumption spending. Suppose the propensity to consume is reduced to equal $0.9\ PDI - \$5$ billion. The reduced expenditure will reduce *GNP* and incomes, and a cumulative downward movement will occur; but the increased supply of loanable funds will lower the interest rate, thus reducing the degree of downswing. From the initial equilibrium of $369 billion, *GNP* would eventually fall to $353 billion. The interest rate would decline from 2.65 to 2.40 per cent. This would give investment sufficient stimulus to keep it at the level of \$60 billion which it initially held, despite the decline in *BDI*. Easier credit thus dampens the multiplier effect but does not prevent its operation.

Change in the Demand for Money. Let us assume now that the demand schedule for money has increased. This action in itself does not tell us what people are going to do to obtain more cash balances. It is probably safe to generalize that short-run shifts are more likely to arise in demand for asset money and that these will affect loanable funds rather than current expenditures. Suppose the demand schedule for money increases in this manner. Demand for transactions balances still equals $GNP/4$, but asset-balance demand rises to $150/r$. We again start from our initial equilibrium *GNP* of \$369 billion.

The higher demand for money will show up as an increase in demand for loanable funds. This change arises because people are borrowing or selling financial assets to obtain cash. (In reality, many reduce their current acquisitions of financial assets also. Our equation measures this reduction, but it is included as part of the increased demand.) The interest rate would rise, and investment would fall. As *GNP* declines, demand for transactions cash will be reduced, and demand for loans will fall also. The interest rate will fall slightly after its initial increase. Ultimately the new equilibrium will find *GNP* reduced to \$341 billion and the interest rate driven up to 3.41 per cent. Initially, people's demand for asset money rose about \$19 billion, to a total of \$57 billion. Ultimately, at the lower level of *GNP* and higher level of interest rate, they hold \$85 billion of transactions cash and \$45 billion of asset money. This example illustrates the manner in which changes in *GNP* and the rate of interest can operate to persuade people to hold the existing supply of cash.

This particular example describes the sort of shift in the demand for money which might occur during a recession, when people's expectations turn pessimistic and they lose confidence in income-bearing assets. At such a time, it would be highly desirable if the money supply could be increased to meet the higher demand, so that *GNP* would not be forced down. One of the main reasons why the Federal Reserve System was established was to make such increases possible. Through its effective operations in the years since 1933, the danger that a monetary panic of the sort described could occur has been virtually eliminated.

Effects on Welfare. We have been analyzing the impact of various changes on *GNP* expenditures. The real consequences for economic welfare arise out of changes in production, employment, and prices. A rise in *GNP* is advantageous to the degree it raises output and employment, an effect which depends on the existing extent of unemployment. If relatively full employment prevails, so that higher *GNP* raises prices, the adverse effects on distribution of incomes and wealth and on public psychology may outweigh the small additions to output and employment which might be achieved. However, even when the economy is near full employment, a gradual upward trend in *GNP* spending over time is desirable and furnishes a demand to match the rising productive capacity of the economy resulting from population growth, capital formation, and technological innovation.

Declining *GNP*, however, will almost invariably have a negative effect on economic welfare. Whether prices decline or not, output and employment are certain to fall. Indeed, in a growing economy, welfare may be adversely affected unless *GNP* increases. The recessions through which the American economy has passed in the 1950s involved very slight reductions in *GNP*, but these were sufficient to increase unemployment and reduce per capita output appreciably.

Limitation of This Analysis. The approach followed in the preceding sections of this chapter is a compromise made in the interest of readers who share the author's lack of mathematical sophistication. A more advanced approach would have been to develop a set of algebraic response coefficients, equations showing how the reaction of *GNP* to any stimulus could be expressed as a mathematical function of the demand for money, the propensity to consume, the marginal efficiency of investment, etc. Or we could have tried to construct a precise econometric model, in which the values of all the data would be determined with great mathematical precision on the basis of past behavior. With the exception of the demand schedule for money, our initial data are not so precisely derived from past experience, but they are fairly realistic and much simpler than the alternatives just noted.

The purpose of the analysis is to stress the way in which the various elements interact, rather than to calculate precisely the actual mathematical outcome. With different data, different specific results are obtained. In particular, we could, without changing the initial data very much, derive a model in which the response of the loanable-funds market to changes in *GNP* would be the opposite of the one depicted. The example we have used shows rising *GNP* raising the demand for funds more than supply, which is in accord with actual interest-rate behavior.

Our analysis omits entirely certain other possible responses. It does not allow for acceleration effects, although they certainly occur in the real world. Induced changes in expectations which might result from *GNP* variations could produce patterns different from those shown, although we have probably adjusted for this factor to some extent by linking investment to *BDI*. Our analysis here omits international repercussions, but these are developed in Chapter 12.

The purpose of the numerical method is to convey a sense of transactions flows over time, which can best be grasped by working out the arithmetic details of the tables and examples so that you can see how each figure is derived from the others. A useful exercise is to try to compute the data for the next period in the sequence of Tables 9-1 and 9-2.

THE QUANTITY AND VELOCITY OF MONEY

The Quantity Hypothesis. For as long as money has existed, intellectuals and men of affairs have been fascinated by the behavior of money and its relation to economic activity. Aristotle, Plato, Thomas Aquinas, Copernicus, John Locke, and David Hume all devoted their attention to it, before the emergence of "economists" for whom it has always been a challenging subject.

In the eighteenth and nineteenth centuries, monetary theories tended to coalesce into a brief and unequivocal hypothesis, which we shall call the "quantity hypothesis." It stated that the value of money would vary inversely with changes in its quantity, because the price level would change in direct proportion to changes in the money supply. Thus if the money supply increased by one-fourth, the price level would also rise by one-fourth, which would mean a decline in the value of money of one-fifth.

This hypothesis has many merits. It is brief and to the point; it accords with common sense and can be tested by looking at the facts. This last characteristic is its downfall, however, for we can find numerous historical periods in which the facts do not support the theory. From an intellectual standpoint, the quantity hypothesis is also defective in that it does not provide an explanation of how changes in the quantity of money cause changes in the price level. Furthermore, it ignores the relation of money to production and employment.

The Fisher Equation. In the twentieth century, considerable effort was devoted to developing an explicit and operational theory relating the quantity of money to the price level, and to output as well. One of the best known and most productive efforts was made by Irving Fisher.[1]

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[1] Fisher occupied a prominent place in American economic thinking for forty years prior to his death in 1947. In addition, he made a fortune from his invention of a visible-file system of card-indexing. He was an ardent prohibitionist and thus believed that if people had a high liquidity preference, they should not be permitted to indulge their propensity to consume. During the stock market boom of the 1920s, he confidently asserted that prosperity would be permanent, because it rested on the increased productivity resulting from Prohibition. He lost heavily in the market crash and was thereafter highly critical of the banking system, which he argued should be required to maintain 100 per cent reserves.

Fisher's theory used the total volume of money expenditures and transactions as a link between the quantity of money and production and prices. He argued that the total volume of expenditures could be regarded as equal to the quantity of money multiplied by its *velocity* of circulation—the average number of times each dollar was spent during a given period of time. He noted that the total volume of expenditures was also equal to the total value of things sold for money, which consisted of the quantity of things multiplied by their respective prices. Putting the two parts together, he derived this equation:

$$MV = PT$$

where T is the physical volume of trade or transactions, and P represents the price level of things sold.

The equation is an identity; it is true by definition. Like such identities as the balance sheet of assets and liabilities, it is useful because it sets a limiting framework around the behavior of its components. It is impossible for any single item in the equation to change unless at least one of the others changes also.

In Chapter 5 we estimated that the total volume of money expenditures and transactions in the economy in 1958 was about $3.3 trillion. At first examination, the Fisher equation appears designed to apply to such a figure for total transactions and can, accordingly, be broken down into M and V. Since the average money supply was about $144 billion, the average transactions velocity of each dollar was about 23. However, it is not so easy to break down total transactions into P and T, for many of the transactions consist of taxes, transfer payments, gifts, gambling transactions, and lending and repayment of debts. Prices cannot easily be assigned to these categories, and the quantitative concept of "things" sold for money does not exactly apply.

More important, the data on total transactions contain a large number of items one is not greatly interested in. Roughly half the transactions reflect financial turnover, and only 10 to 20 per cent are purchases of final output. Thus even if we could construct statistically meaningful indexes of P and T, they would be such composite aggregates as to be of little interest or significance. The price index would be weighted as heavily by stock and bond prices as by prices of goods and services, and the index of quantity of things sold for money would be as much affected by changes in the volume of shares of stock traded as by changes in current production.

Because of these difficulties, such a broad interpretation of the Fisher equation is not much used. Instead, the equation is commonly modified to focus attention on *GNP* transactions. It can then be written in this form:

$$MV_g = OP = GNP$$

Velocity now becomes V_g, the *GNP* or income velocity of circulation of money, defined as the average number of times each dollar is spent to buy currently produced final goods and services. Output and prices now simply correspond to the measures we have used in previous discussions of *GNP*. For some purposes, however, it may be useful to use measures of velocity based on total transactions. Statistically, V_g cannot be estimated independently of the other data in the equation. It is merely computed by dividing the money supply into *GNP*. There do exist independent direct data on transactions velocity as measured by the turnover of bank deposits. The behavior of the latter data is a useful check on computed values of V_g.

The following data illustrate the calculation of the modified Fisher equation in terms of *GNP* categories (dollar amounts in billions):

$$\begin{array}{rcccccc}
M \times V_g & = & GNP & = & \text{output} & \times & \text{price index} \\
 & & \text{(current prices)} & & \text{(1954 prices)} & & (1954 = 100) \\
1947{:}\ \$115 \times 2.04 & = & \$234 & = & \$282 & \times & 83\% \\
1957{:}\ \$141 \times 3.13 & = & \$443 & = & \$410 & \times & 108\%
\end{array}$$

Since government transactions are included in *GNP*, we include government deposits in the money supply when calculating velocity. Be sure you can determine from these data how one would compute velocity and how, given the price index, the figure for output is determined.

The Fisher equation brings together in a simple quantitative balance the factors we have been dealing with ever since Chapter 3. It explicitly relates the quantity of money, total expenditures, output, and prices. Since our chief problem has been to relate the quantity of money to output and prices, the concept of velocity seems made to order for the task.

The Nature and Behavior of Velocity. Since velocity of circulation is defined as the average number of times each dollar is spent, it depends on the average length of time people hold on to their money. "Normal" velocity is fairly well determined by the institutional pattern of payments in the economy—by the timing of business payments and the extent to which transactors use credit as a substitute for cash. These are the factors to which we attribute the level of demand for transactions cash balances. The velocity of money used in transactions is simply a reciprocal of the demand for such balances. If the demand for transactions balances is equal to one-fourth of *GNP*, the *GNP* velocity of these ("active") balances will be 4 per year.

Fisher concentrated most of his attention on these institutional determinants of velocity and concluded that, since they were not subject to large short-run variation, velocity itself was a relatively stable magnitude. Were this true, it would be of great importance, for variations in the quantity of money would be reflected in proportional variations in total spending. Faith in this sort of proportionality marked much of the discussion of monetary policy prior to the 1930s.

Our previous analysis has indicated that no such proportionality between money and spending can be expected. The possibility of divergence arises from the existence of asset balances, which are held idle as a store of value. These have a velocity of zero. The average velocity of the total money supply is thus a weighted average in which the division between active and idle balances is reflected. As an illustration, suppose transactions balances have a velocity of 4 and that one-fourth of the money supply rests in idle balances with velocity of zero. The velocity of circulation of the total money supply would be 3. Computed velocity for the total money supply would show variations in response to changes in the division between active and idle money, even though the rate of turnover of active money might not change.

Velocity therefore depends on the factors which determine the amount of asset balances which people want to hold. We have noted that this demand will be influenced by expectations and risk attitudes but that the chief short-run influence in the 1950s was the level of interest rates. When interest rates are low, people hold more cash idle. Consequently, velocity is likely to vary directly with interest rates.

Since velocity really depends on all the factors determining the demand for cash balances, it does not possess any great explanatory value in itself. Nevertheless, for purposes of description and exposition it is still quite useful. One of its useful properties is that it calls attention to money in motion, which is the aspect of money we are primarily concerned with. From a terminological standpoint, when we say that the velocity of money has increased, this statement effectively communicates the idea that expenditures have risen. Saying that the demand for cash balances has decreased does not so immediately suggest a rise in expenditures.

The velocity concept and the Fisher equation generally are quite useful for descriptive purposes, and we shall use them quite extensively in subsequent historical chapters. Velocity is a very handy summary item representing all the factors responsible for the relative size of active and idle cash balances; but we must beware of attributing any great independent causal significance to velocity. Some measures of the size and variations of velocity are shown in Figure 9-2, which shows the behavior of the quantity of money, *GNP* velocity, and transactions velocity as measured by Federal Reserve estimates of the annual turnover of demand deposits.

Since 1927, *GNP* velocity has fluctuated between a high of 3.92 and a low of 1.70. V_g rose to its peak in 1929 and then declined substantially as the Depression set in. Lower interest rates contributed to this decline, but the extremely pessimistic business outlook was also an important factor. Distrust of income-bearing assets was widespread at a time when expectations of declining incomes and prices raised the demand for liquidity. In 1932 the scramble for cash reached panic proportions.

During the 1930s, V_g drifted slightly downward as interest rates declined, and this trend was accentuated during World War II. Lower velocity during the war also reflected the fact that the money supply had increased greatly, while people's opportunities to spend it were held in check by shortages and rationing.

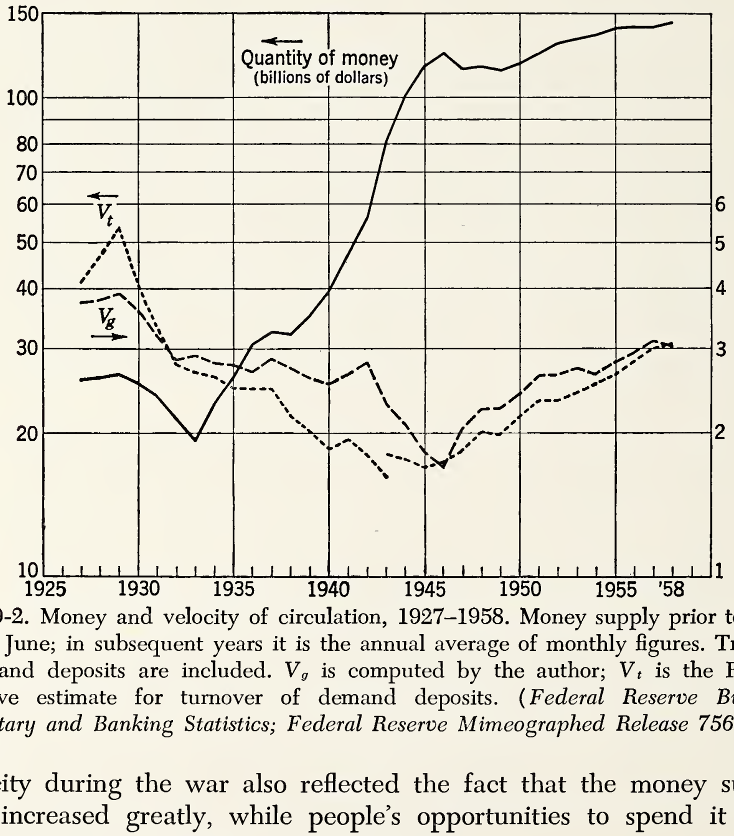

FIG. 9-2. Money and velocity of circulation, 1927–1958. Money supply prior to 1942 is for June; in subsequent years it is the annual average of monthly figures. Treasury cash and deposits are included. V_g is computed by the author; V_t is the Federal Reserve estimate for turnover of demand deposits. (*Federal Reserve Bulletin; Monetary and Banking Statistics; Federal Reserve Mimeographed Release 756.*)

After 1947, V_g began to rise again and maintained the upward trend through most of the 1950s. Artificial barriers to private spending were removed, interest rates began to move upward, and people held an increasing proportion of their liquid assets in income-bearing forms. This rise in velocity is a counterpart of the process we depicted in Table 8-2, whereby idle cash balances were greatly reduced and an increasing share of the increasing money supply was required for transactions purposes. By 1957, V_g had reached 3.13, which was below its peak levels in the late 1920s but well above the levels of the 1930s and 1940s.

Transactions velocity, as measured by the turnover of demand deposits, maintained a level about ten times as large as V_g. This ratio reflects the large volume of transactions for intermediate products and services and of financial transactions relative to *GNP*, as shown by Table 5-1. The movement of V_t over the period shows the same broad pattern as that of V_g. However, V_t rose more than V_g in 1927–1929 and fell more in the years immediately following. This resulted from the great increase in financial-turnover volume attending the stock-market boom and from the great deflation in financial-payments volume after the market crashed. Since 1950, the upward trend of V_t has been stronger than that of V_g, with financial transactions again the main factor.[2]

The Money Supply, the Banks, and Velocity. Velocity depends on the demand schedule for money. Given the demand schedule for money, velocity will vary directly with the rate of interest. But the rate of interest depends in part on the supply of money. A large increase in M through credit transactions will normally reduce the interest rate. In this case, V_g is indirectly determined by M! There is a systematic tendency for M and V_g to vary in opposite directions in response to monetary policy, particularly if decisions to spend are not highly sensitive to credit conditions. Easy credit means lower interest rates and lower velocity; tighter credit raises both interest rates and velocity.

This interdependence between M and V_g undermines the value of the Fisher equation as an explanatory device. The equation implies that M and V_g are relatively independent. In practice, the quantity MV_g may be the significant variable, measuring *GNP* spending and changing largely in response to decisions to spend. Increasing desire to spend may bring forth an increase in M if the banks are permitted to expand loans to meet the higher demand. If they are not, interest rates will rise and *GNP* velocity will become higher.

Since variations in V_g tend to move opposite to variations in M, it might appear that monetary policy is thereby rendered ineffective. This is not necessarily the case, however. If spending is influenced by the cost and availability of credit, the variations in V_g will not completely offset variations in M. Since we have ample evidence that spending is affected by credit costs and availability, we need not abandon our trust in the influence of monetary policy.

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[2] Brokers, investment bankers, and government securities dealers generate a huge volume of debits on a very tiny amount of cash holdings. A study by the New York Clearing House Association in early 1959 indicated that these financial firms' accounts with 14 large New York banks generated $28 billion of debits in one month on deposits averaging $400 million. On an annual basis, these would represent 10 per cent of the total transactions volume in the entire economy. Deposit accounts of these firms had an average annual velocity of over 800; for government securities dealers, who accounted for two-thirds of the transactions volume, velocity exceeded 11,000 per year! See *Member Bank Reserve Requirements, Hearings by the Senate Committee on Banking and Currency*, March, 1959, pp. 88–90, 170–172.

Changes in velocity are explained largely in terms of decisions by the public to hold cash, but in practice the commercial banks are also intimately involved in velocity changes. This involvement arises from changes in the composition of their assets and liabilities. The households of the economy keep most of their liquid assets either in money or in time deposits. When interest rates rise, they increase the proportion held in time deposits. When households shift funds from currency or demand deposits to time deposits, the initial effect is to reduce the money supply. Because the reduction comes largely out of idle balances, the velocity of remaining money increases. However, the shift gives the banks excess reserves. If coin and currency flow in, they have more total reserves. If the public shifts from demand to time deposits, some reserves formerly required are released. If the banks expand loans, the money supply may be restored to its previous level. Since the newly created money goes into active circulation, velocity remains higher than it was to start with.

The composition of bank assets also influences velocity. Banks are continually receiving a large inflow of loan repayments. If they use these funds to make new loans to business firms and consumers, the money will remain in active circulation. If the economy is prosperous, the banks will probably maintain or increase their loan volume; if a recession is under way, they may allow loan volume to contract and buy government securities in the open market instead. This action may reduce velocity, for securities will often be purchased from other investors, who are not likely to spend the money for current output. They may respend it for other financial investments, but this does not in itself produce a positive V_g. With low interest rates and high securities prices, investors may hold this money idle, awaiting more favorable investment conditions. This retention of the money will lower V_g.

Figure 9-3 shows the historical correspondence among V_g, the rate of interest, the ratio of time to demand deposits, and the ratio of commercial bank loans to holdings of United States government securities.

Comparing V_g with the interest rate shows a general but far from complete correspondence. The two moved similarly in 1927–1930, but the drop in V_g in 1931–1932 reflected a depression-inspired increase in the demand *schedule* for money strong enough to push interest rates up. The end of the panic in 1933 reduced the demand schedule enough to raise velocity and bring interest rates down again. Broad movements of the two series diverged again during World War II. Velocity fell more than interest rates would seem to warrant. This behavior reflected large Treasury deposits and wartime restraints on spending. After the war, V_g and the interest rate showed close correspondence in direction, although the magnitudes of variation were often not closely matched.

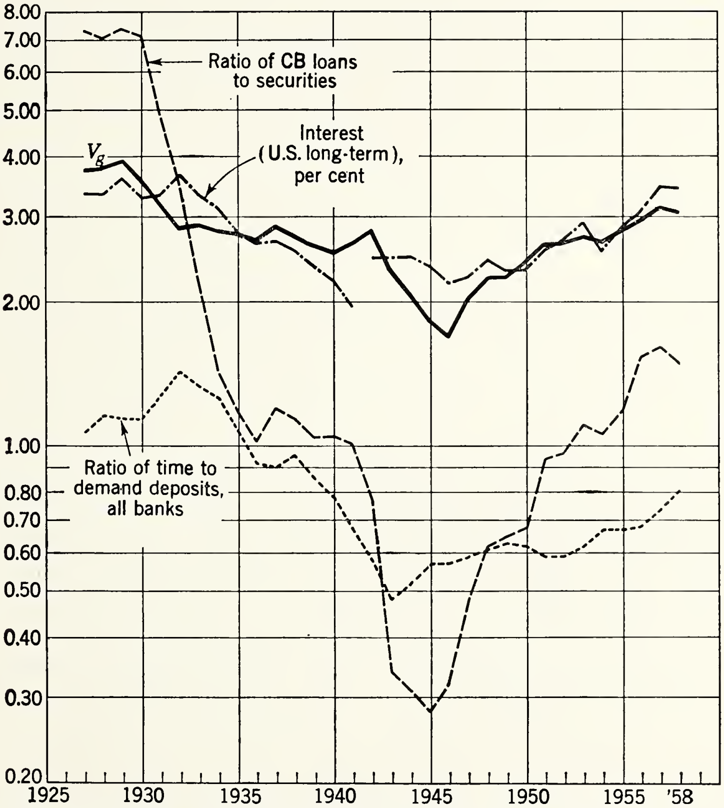

FIG. 9-3. Some determinants of velocity, 1927–1958. Loan and deposit ratios are for June. (*Monetary and Banking Statistics; Federal Reserve Bulletin.*)

The ratio of time to demand deposits (for commercial and savings banks) shows a broad pattern similar to that for V_g. In the years 1927 to 1942 it seems to lag behind, for reasons we shall not attempt to explore here. After 1947, both series showed a general upward trend, but their year-to-year correspondence was not great.

The best correspondence is found in the composition of bank assets. Not only is the general drift similar, but the year-to-year changes are quite similar in direction and magnitude, except during World War II, when the banks' holdings of securities were abnormally enlarged.

These data suggest that the ratio of time to demand deposits drifts gradually and contributes to the general trend of velocity over a number of years but not to its short-run variations. Composition of bank assets, however, is closely related to both the over-all trend and the short-run movements of V_g.

Because the commercial banks occupy this important position in relation to velocity, it appears possible that monetary and banking policies might be employed to control V_g through the banks, instead of being used merely to control M. For instance, regulation of banks' assets might prevent or limit their freedom to shift between loans and government securities. Equalizing reserve requirements on time and demand deposits would prevent banks from creating active money to replace idle money which was converted into time deposits.

These possibilities are worth exploring, but such analysis must be undertaken circumspectly, for such controls of velocity will not necessarily produce desired patterns of total spending, which is what monetary policy is ultimately aimed at. For instance, if we prevent banks from buying government securities in recessions, they may merely hold more excess reserves. We avoid a reduction in V_g by tolerating a reduction in M. Furthermore, the use of conventional Federal Reserve techniques may be adequate to compensate for bank actions affecting velocity. If a shift from demand to time deposits appears likely to produce an undesirable inflationary result, Federal Reserve actions to reduce bank reserves can hold it in check. Still, the task assigned to monetary policy might be easier if the institutional framework within which the banks operate were arranged to reduce the possible velocity effects of changes in the composition of assets and liabilities.

Fiscal Policy and Velocity. Shifts in the relative magnitudes of government revenues and expenditures may produce changes in velocity. Suppose the government engages in large wartime deficit spending financed by borrowing from the public. As we noted earlier in this chapter, such an increase will tend to raise *GNP* and interest rates. If the money supply remains relatively unchanged, *GNP* velocity will necessarily rise. The higher interest rates will contribute to this by drawing funds out of idle balances.

Correspondingly, a reduction in expenditures relative to taxation will tend to reduce *GNP* and also lower interest rates. As an illustration, the large cut in Federal expenditures at the end of World War II lowered *GNP*. Surplus revenues were used for retirement of public debt, which reduced interest rates. Since private spending opportunities and incentives rose, the effect of fiscal policy was not reflected in an actual decline in velocity; V_g simply did not rise as much as it might have.

Actually, the principles stated here for government fiscal policy would apply to the spending behavior of business firms and households as well. An increase in the marginal efficiency of investment would tend to raise *GNP* spending and the demand for loanable funds. If banks could expand loans and demand deposits, M would rise. If M were restrained, interest rates would go up and V_g would show an increase. Because of the higher interest rates, however, the rise of *GNP* would not be so great in the second case. A shift in the propensity to consume could set off similar repercussions on V_g.

This analysis suggests that the behavior of V_g as measured statistically depends to a large degree on the underlying desires to spend in relation to income and on the extent to which the money supply is permitted to adjust to variations in those desires. The interest rate is really an indicator of the degree to which M adjusts to *GNP*. For these reasons, it is a mistake to treat velocity as a constant to which other magnitudes adapt themselves.

Interaction of Components. Since the modified Fisher equation brings together the principal economic magnitudes with which we have been concerned, we shall use it as a vehicle for a low-pressure synthesis of the main aspects of the relation between the quantity of money and economic welfare.

Changes in the quantity of money can best be analyzed by the consolidated balance sheet for the monetary system. We noted that changes in M usually arise from changes in the assets of the monetary system, particularly the monetary gold stock, commercial bank loans and securities, and Federal Reserve securities holdings. Changes in other assets and in nonmonetary liabilities are less likely to initiate changes in M. Let us look more closely at the three major asset categories.

1. Changes in the monetary gold stock originate chiefly from gold imports or exports. These depend on the condition of the balance of international payments, which we shall analyze in Chapter 12. However, it is useful to distinguish between gold movements arising from changes in imports and exports of goods and services and those arising from financial transactions. If rising foreign purchases of American goods are paid for by sending gold to the United States, the resulting increase in demand deposits will enter directly into the main money circuit of *GNP* expenditures. However, if gold is sent to the United States to repay loans or buy securities, the new money enters the financial circulation.

2. Changes in the loans and securities of commercial banks arise chiefly from variations in the amount of bank reserves and the level of reserve requirements. Since World War II, the commercial banks have generally expanded their deposits close to the limit of their reserves.

We have seen, however, that if banks make loans the money they create is likely to go into the main money circuit, while if they buy securities it passes into the financial circulation.

Member bank reserves can be explained in terms of a consolidated balance sheet of their own. Principal determinants are the monetary gold stock, Federal Reserve credit, and the demand for coin and currency by the public. However, Reserve bank credit may be regarded as a balancing item, which is adjusted to compensate undesired variations in the other items. Since the Federal Reserve determines reserve requirements as well, we can regard the volume of commercial bank loans and securities as determined primarily by Federal Reserve policy.

3. Federal Reserve securities holdings affect both the money supply and bank reserves. Securities holdings reflect the workings of open-market policy, which is undertaken to adjust the money supply to the needs of prosperity without inflation. Variations in other determinants of money and reserves change the amount of Federal Reserve credit needed for a given objective, but Reserve operations can always counteract the movement of the other variables when this seems desirable.

Reserve bank securities purchases do not introduce money directly into the main money circuit. Money created by purchasing securities from nonbank investors goes initially into the financial circulation.

From the foregoing explanation, it is apparent that the increases in the money supply, whatever assets are involved, may inject money directly into the main circuit or may introduce it initially into the financial circulation. The first method is typified by a gold inflow to buy current export production; it would also include a government deficit financed by newly created currency or bank deposits. In such cases, the new money will have an average *GNP* velocity at least as high as that of existing money. In other words, the velocity of the total money supply will not fall; therefore *GNP* expenditures will rise proportionately to the increase in M. As an illustration, calculate velocity in the situation depicted by Table 9-2.

However, if the increase in M enters the financial circulation initially, the effects on *GNP* depend on credit conditions. The new money adds to the supply of loanable funds and tends to raise security prices, lower interest rates, and ease credit; but much of it may be absorbed into idle cash holdings, particularly if the investment outlook is unfavorable. Some of it stimulates higher borrowing and spending, depending on the existing state of incentives and particularly the marginal efficiency of investment.

If there is little demand for additional idle balances and if the demand for funds to buy capital goods is strong and sensitive to credit variations, most of the new money will get through the "gap" and circulate in the *GNP* flow. The velocity of the additional money will not be appreciably different from the previous level of V_g. Consequently, *GNP* will be affected just about as much as if the new money went into spending directly. This can be expected when business is prosperous and when interest rates are initially high.

However, if the business and financial outlook is pessimistic, much of the new money may either lie idle or be repeatedly respent for financial transactions. In this case the new money has a low or zero *GNP* velocity of circulation. *GNP* will not rise proportionately with M, and the *GNP* velocity of the total money supply will decline. The change in velocity implied by Table 9-1 (which can easily be calculated) illustrates a possibility between these two extremes.

It is clear from the foregoing analysis that variations in *GNP* velocity may be the result of certain changes in the money supply. However, velocity may also vary in response to shifts in the basic psychological desires to spend or to hold cash balances. A rise in the propensity to consume or the marginal efficiency of investment could raise *GNP* velocity. An increase in the desire for cash in relation to other liquid assets might lower it.

If aggregate expenditures MV_g change, there will of course be an equal change in the value of output OP. A rise in MV_g will raise output if there is substantial unemployment (in the short run) or if productive capacity expands (in the long run). The more nearly full employment is reached, the more prices will tend to be forced up by higher MV_g. When MV_g declines, the primary impact will be to reduce output.

Both M and V_g may change in response to variations in the underlying psychological desires to spend in the economy. If spending desires rise, the demand for loans will go up. If banks are permitted to increase their deposit liabilities, M will rise. If not, interest rates and V_g will go up. It would be misleading to say that in the first case the increase in M *caused* the increase in *GNP* and that in the second velocity was the *cause*. The cause was the same in each case. M and V_g merely measure the channel through which decisions to spend operated. Of course, if M is increased through monetary policy, it may be regarded as the cause of any rise in *GNP* which is induced thereby; but the rise in M should also be considered the cause of the reduction in V_g which is likely to accompany it.

The Quantity Hypothesis Once More. At the beginning of this chapter, we noted briefly the "quantity hypothesis" that the price level would change proportionately with changes in the quantity of money. If we examine this in the light of the Fisher equation, it implies that the ratio between M and P will remain constant. For this to occur, output and velocity must either remain constant or maintain a constant ratio to each other. To put it another way, an increase in M will cause prices to rise in about the same proportion *if* the added money is spent (velocity does not fall) and *if* the added expenditure does not bring very much increase in output. These conditions are likely to be fulfilled in times of full employment, especially if the public is sensitive to the danger of inflation. At other times, however, increases in the money supply may occur without leading to substantial increases in price levels. In periods of depression and unemployment, increasing M may raise production rather than prices and thereby increase economic welfare. The problem at such a time may be to find a means of increasing M without affecting V_g adversely—in other words, to see that the additional money gets spent for goods and services.

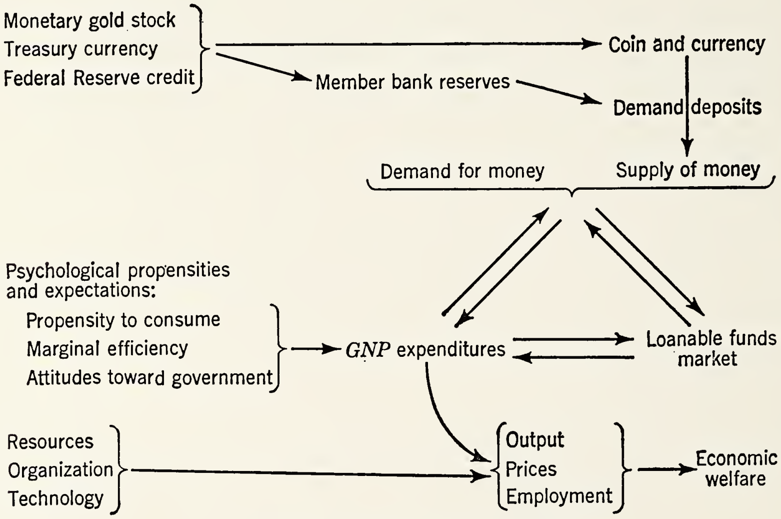
Monetary gold stock
Treasury currency
Federal Reserve credit
Coin and currency
Member bank reserves
Demand deposits
Demand for money
Supply of money
Psychological propensities and expectations:
Propensity to consume
Marginal efficiency
Attitudes toward government
GNP expenditures
Loanable funds market
Resources
Organization
Technology
Output
Prices
Employment
Economic welfare

FIG. 9-4. Money, spending, and welfare.

The relation between M and P has varied from period to period. For the most part, they have moved in the same direction, but the proportions have differed widely. From 1929 to 1933, M and P fell by about the same proportion. From 1933 to 1940, M rose more than 90 per cent, prices less than 10 per cent. During the war, M approximately tripled, while prices rose less than half. However, during the postwar inflation, prices rose 25 per cent, while M remained roughly constant from 1945 to 1950. M and P both increased by about 22 per cent from 1950 to 1958, an impressive parallel movement which was not quite maintained for individual years in the period.

For short-period analysis, the quantity hypothesis clearly does not apply when unemployment is substantial. For long periods, the hypothesis is invalidated by the growth trend of output. Thus during the nineteenth century, the United States money supply increased almost 200-fold, yet the trend of prices was, if anything, slightly downward.

However, Professor Friedman has refurbished the quantity hypothesis by stressing the relationship between prices and the quantity of money per unit of output. He argues that "to the best of my knowledge there is no instance in which a substantial change in the stock of money per unit of output has occurred without a substantial change in the level of prices in the same direction. Conversely, I know of no instance in which there has been a substantial change in the level of prices without a substantial change in the stock of money per unit of output in the same direction. And instances in which prices and the stock of money have moved together are recorded for many centuries of history, for countries in every part of the globe, and for a wide diversity of monetary arrangements."[3]

Friedman recognizes that the monetary expansion may not have caused the price increases, since rising expenditures may have called forth more money through expansion of bank credit, and he restricts his generalization to long periods of time. With these concessions, the quantity hypothesis is of considerable value. It furnishes the key, for instance, to the world-wide price deflation of the last half of the nineteenth century, when output expanded much more rapidly than the quantity of money, which was restrained by its ties to a slow-growing stock of gold.

SUMMARY

Changes in the quantity of money affect economic welfare through their influence on output, prices, and employment. This influence is exerted through the effects which money produces on the volume of spending for current output. Effects of a monetary change may differ depending on whether the new money is injected directly into the main money circuit or whether it enters the financial circulation as an addition to the supply of loanable funds. In the former case, *GNP* is raised directly. In the latter case the immediate effect is to reduce interest rates and ease credit, which in turn should stimulate a higher level of borrowing and spending by business firms, consumers, and some government units. If the money enters through loanable funds, the initial response depends on the degree to which interest rates are reduced and on how much spending is stimulated by credit ease.

[3] Milton Friedman, "The Supply of Money and Changes in Prices and Output," in "The Relationship of Prices to Economic Stability and Growth," *Compendium of Papers Submitted by Panelists,* Joint Economic Committee, United States Congress, 1958, p. 242. (Footnote references omitted.)

Secondary responses to monetary expansion of either type will depend on the multiplier and related effects, through which initial increases in gross incomes give rise to successive respendings. However, the final outcome will also depend on the "feedback," through which a rise in *GNP* affects the loanable-funds market and the state of interest rates and credit conditions.

The consequences for economic welfare of higher spending will be greater if resources are unemployed, since higher spending will elicit higher output. If the chief effect of higher expenditure is higher prices, welfare may improve very little or even be adversely affected. The relationships which we have been constructing since Chapter 3 are represented symbolically in Figure 9-4.

QUESTIONS FOR STUDY

1. The Federal government can bring about a general reduction in interest rates in either of two ways. It can reduce its expenditures relative to its revenue or increase the quantity of money (which might result from a reduction in the Treasury cash balance). Explain how each of these would tend to lower interest rates. What difference would it make for the behavior of *GNP* whether one or the other was chosen?

2. Explain how the magnitude and character of each of the following affect the way in which *GNP* would respond to an increase in the money supply through Federal Reserve open-market purchases:
   a. The marginal efficiency of investment
   b. The propensity to consume
   c. The demand schedule for cash balances

3. "An increase in the interest rate raises velocity. Therefore higher interest rates are inflationary." Discuss.

4. How would *GNP* and the rate of interest be affected by each of the following? Explain the process and result.
   a. An increase in the demand schedule for money
   b. An increase in exports
   c. An increase in tax rates
   d. A reduction in the propensity to consume

5. Between 1929 and 1936, the quantity of money in the United States increased from \$26 billion to \$30 billion. At the same time, total *GNP* spending (current prices) fell from \$104 billion to \$83 billion and the price level of goods and services fell by 17 per cent.
   a. What caused the money supply to increase?
   b. Fit these data into the Fisher equation and compute V_g and output. Explain what your figure for output means.
   c. Explain the behavior of production and prices in the face of a rising quantity of money.

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PART FOUR

THE WORLD OF FINANCE

CHAPTER 10

FINANCIAL INSTITUTIONS: SAVING AND INVESTMENT

SCOPE AND FUNCTIONS

Scope of Financial Business. One of the most striking features of the modern American economy is its extensive and complex network of financial institutions. In 1958, these employed about 1.9 million individuals and were the source of $13 billion in net income. Some idea of their scale and variety is given by Table 10-1.

Table 10-1
Financial Institutions, 1958

Type	*Number*	*Employment*	*Assets (June), billions of dollars*
Commercial banks	13,600	587,000	$223
Mutual savings banks	500		35
Savings and loan associations	6,300	50,000	51
Life insurance companies	1,300	446,000*	104
Other insurance companies	1,000+	604,000*	24
Securities brokers, dealers, exchanges	5,000	100,000	3
Consumer loan, sales finance companies	8,000	185,000	18
Investment companies	400		16
Credit unions	19,000		4
Corporate pension funds	45,000	†	21

* Includes self-employed agents not included in the number of companies

† Chiefly administered by banks and other firms separately listed

SOURCES: *Federal Reserve Bulletin; Survey of Current Business; Annual Report of Securities and Exchange Commission;* annual fact books of Institute of Life Insurance, United States Savings and Loan League, New York Stock Exchange, and Credit Union National Association.

There are more than 50,000 firms engaged primarily in financial business. Most of these are financial "intermediaries," which acquire funds by issuing claims against themselves and use the funds to acquire financial assets issued chiefly by nonfinancial sectors of the economy ("primary securities"). Financial intermediaries held about $500 billion of such assets in 1958, including nearly two-thirds of the indebtedness of the nonfinancial sectors of the economy. Some firms, such as brokers and investment bankers, function merely as channels through which primary securities are purchased by other buyers. The volume of financial transactions conducted by financial institutions is immense; it probably exceeded $1.5 trillion in 1958, even excluding bank clearings and other technical transfers of that sort. These firms are involved in most of the transactions involving loanable funds which we have analyzed in the previous chapters. Their operations thus are involved in the flow of saving and investment, the determination of interest rates, and the level of *GNP* expenditures. However, it is not the short-run money-flow aspect of financial institutions which we shall deal with here.

Functions. Financial institutions contribute to long-run economic welfare in two general ways.

1. They facilitate the accumulation of *real* assets by business, consumers, and government. The flow of funds through financial institutions links financial saving with spending on credit. Spending on credit goes largely to acquire real assets, such as autos, houses, factories, machines, roads, and schools. Thus financial institutions are involved in the process of increasing the real wealth of the economy, particularly the capital goods needed for rising productivity. In this process, such institutions exercise an important influence on the volume and composition of real-capital formation. The remainder of this chapter deals with this function.

2. They provide the public with desirable *financial* assets, such as checking and savings deposits, insurance policies, and pension and annuity rights. These assets and the services associated with them directly enhance consumer utility or economic productivity. We shall deal with this function in Chapter 11. Of course the availability of these assets encourages people to save, so that performance of the first function is facilitated. Financial institutions in this way exercise an important influence over the volume and composition of saving.

THE ACCUMULATION OF REAL WEALTH

Measurement. Some idea of the size and composition of the real wealth of the American economy is conveyed by Table 10-2, which summarizes Raymond Goldsmith's estimates for 1955.

Total real wealth in 1955 was over $1.3 trillion—about three times as

Table 10-2
Real National Wealth, 1955

(Billions of dollars)

Nonfarm residences	$ 321
Other private structures	216
Government structures	126
Producer durables	160
Consumer durables	144
Inventories	112
Monetary metals	25
Total reproducible assets	$1,105
Land and other nonreproducibles	224
Net foreign assets	15
Total wealth	$1,344

SOURCE: *Financial Research and the Problems of the Day,* National Bureau of Economic Research, Inc., Annual Report, May, 1957, p. 34. Percentage data converted to dollars by the author.

large as *GNP*. Of this total, nearly half a trillion consisted of homes and consumer durables. There were about 43 million nonfarm dwelling units and 50 million automobiles. The volume of productive capital assets held by business and government was even more enormous. "There are 260,000 miles of railroads, 1.7 million freight cars, and 4.6 million farm tractors. Pipelines for gas and oil exceed 500,000 miles. We have about 1.9 million miles of hard-surface highways and 11 million trucks. There are nearly 300,000 factories. . . . "[1]

Business firms and government hold about two dollars worth of capital assets for every dollar of annual output, and American manufacturing industry uses more than $10,000 of capital per worker. The chemical industry uses $20,000, petroleum refining $70,000, and electric utilities $150,000 of capital per worker![2]

Capital Goods and Productivity. The logic of directing current output into production of capital assets is that the total enjoyment yielded by resources may be greater if some of them are put into forms which yield their enjoyment only in the future. The durable assets held by consumers yield their enjoyment directly through use. Accumulation of business capital through investment helps to raise the nation's economic productivity.

The productivity of the labor force depends on the amount of capital goods and natural resources each worker has available to work with. Capital goods can vastly enlarge both the power and skill with which an operation is performed.

[1] C. Lowell Harriss, *The American Economy,* 3d ed., Richard D. Irwin, Inc., Homewood, Ill., 1959, p. 52.

[2] *Ibid.,* p. 53 (data for 1959).

In an industrial economy, the need for current production of capital goods arises from three sources:

1. A substantial volume of gross investment is necessary merely to replace old capital assets wearing out. In recent years, about 8 per cent of our total output has been required for this purpose.

2. In the American economy, population and labor force have been growing steadily. Merely to keep each additional worker supplied with the same amount of capital goods requires a substantial addition to our total capital assets each year. In the late 1950s it required more than $10,000 to equip each additional worker. With our labor force growing at a rate of nearly one million per year, $10 billion of annual investment is needed merely to keep pace and provide productive employment for the added workers.

3. In order to raise output per worker, and per capita, it is desirable to increase the amount of capital investment per worker. This increase often means that different *kinds* of capital goods are used, more closely adapted to particular functions and capable of leading to economies of large-scale operation. In road-building, for instance, more capital per worker means not more picks and shovels per man but more men equipped with bulldozers and other heavy mechanized equipment. Additional capital per man often comes into use indirectly, through development of public utilities and transportation. One of the most important contributors to current American industrial growth has been the rapid increase in energy available per worker, largely resulting from development of a capital-intensive electrical generating industry and the increased use of electrically driven equipment.

Capital Goods and Technology. Even more important, capital formation is the chief medium through which technological progress operates to raise productivity. To an impressive degree, the important innovations in our economy have involved products or methods of production in which large capital investment was involved. Such important products as the automobile, electricity and machines to use it, plastics, and synthetics are closely associated with high-capital industries. Likewise, large capital investment has been necessary for adoption of such methods of production as the assembly line, the continuous-strip rolling mill, and the automatic petroleum refinery. Most technological innovations must be embodied in capital goods to become effective. However, this embodiment can occur through replacement investment; it is the *gross* output of capital goods which is potentially significant.

The contribution of capital formation and technical progress to raising American living standards in the twentieth century is very striking. Between 1900 and 1955, output per capita rose about two and one-half times, while hours worked fell from an average of 60 per week to about

40. Professor John W. Kendrick has estimated the relative importance of various factors toward the threefold rise of total output in the period 1919–1953. He attributes about 36 per cent of this rise to the growth of the labor force, accompanied by a proportional growth in capital, about 5 per cent to occupational shifts, another 5 per cent to the increase in capital inputs per worker, and 54 per cent to higher productivity resulting from improved technology and labor skills. Professor Kendrick concludes that over the long run the principal benefits of capital formation and higher productivity have gone to workers and consumers rather than suppliers of funds and have tended to raise output, employment, and voluntary leisure rather than create serious unemployment.[3] Where there are such widespread benefits, it is clearly in the public interest to encourage a large volume of (appropriately chosen) investment.

Professor Arthur Smithies has estimated that we must devote about 5 per cent of *GNP* to gross capital formation for each 1 per cent annual increase in *GNP* desired. Thus for a 3 per cent annual growth of *GNP*, we would need to direct 15 per cent of current output into investment —about what we maintained in the 1950s.[4]

Real Saving. How does a nation acquire such a huge volume of real wealth? Some of it exists in nature, but most of it consists of accumulated products of past production. Ignoring international factors, we can note two conditions needed for such accumulation. First, the economy must have enjoyed a sufficiently high level of real income and productivity in the past for this stock of goods to be produced or acquired. Second, there must have been a willingness by the public to refrain from devoting all production to current consumption—that is, to save, in real terms.

What is the relation between this process of real saving and the financial system? Real saving can occur without financial saving. A substantial portion of the accumulation of capital goods by consumers and business firms is financed out of income. However, the financial process is brought into operation by two important factors. First, many people desire to save by accumulating financial assets rather than real goods. Second, other transactors desire to spend more than their incomes, usually to buy real capital assets. Many capital assets have large total costs and are beyond the reach of current income. Business firms are tempted to buy capital assets on credit because they are financially productive and can increase subsequent income by more than enough to repay their initial cost.

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[3] Kendrick, "Trends in Product Prices, Factor Prices, and Productivity," in "The Relationship of Prices to Economic Stability and Growth," *Compendium of Papers Submitted by Panelists*, Joint Economic Committee, United States Congress, 1958, pp. 227–230.

[4] "Use of Selective Credit Controls," in Neil Jacoby (ed.), *United States Monetary Policy*, The American Assembly, New York, 1958, p. 75.

The Saving-Investment Process. We are interested in three actions of the major sectors of the economy—the accumulation of real wealth, the acts of saving, and the acquisition of external funds to finance spending on credit. These bear a sort of triangular relationship to each other, which results from the following facts:

1. Accumulation of real wealth may be financed out of income or on credit.
2. Saving may be used for the direct acquisition of real assets or for financial saving (acquiring financial assets or repaying debts).

When we are considering each major sector of the economy as a unit, certain simplifying conditions exist. On balance, each sector shows a net increase in real assets, financial assets, and debt each year. For individual transactors, however, these conditions often are not met. Individual households or firms may reduce their holdings of real assets; they may engage in financial saving by reducing their net indebtedness or may spend in excess of income by reducing holdings of financial assets. Thus shifts in the internal composition of assets and liabilities give rise to a large volume of financial transactions which disappear when major sectors are depicted in the aggregate.

BUSINESS INVESTMENT AND FINANCING

General Data. Business firms are the chief instrument through which productive capital formation occurs in our economy. Although about two-thirds of gross capital expenditures by business are financed out of depreciation allowances and reinvested income, businesses still draw on large absolute amounts of outside funds to purchase real capital goods and to increase their holdings of financial assets needed for business. Table 10-3 summarizes the behavior of business with respect to acquisitions of real capital, financial assets, and external financing.

For the business sector as a whole, net external finance (after deducting increased financial assets) accounted for about two-thirds of *net* capital formation. More than 85 per cent of external financing came through increasing business debts rather than ownership claims. Indeed, the noncorporate sector showed a reduction in owners' equity, since owners' withdrawals of funds exceeded the net income of the firms.

Decisions on Financing. The individual firm, whether incorporated or not, must make several decisions about obtaining external funds. It must decide whether to get them, what to use them for, how much to obtain, what kinds of liabilities to issue, and where to obtain the funds.

Table 10-3

Capital Formation and Its Financing, Nonfinancial Business, 1954–1958 Inclusive

(Billions of dollars)

	Corporations	*Noncorporate and farms*	*Total*
Gross capital formation	$137	$ 71	$209
(−) Depreciation	94	56	150
(=) Net investment	$ 43	$ 15	$ 58
(−) Reinvested profits	29	....	29
(=) Net external finance	$ 14	$ 15	$ 30
Gross external finance:			
Mortgage loans	$ 10	$ 8	$ 18
Bank loans	2	11	13
Corporate bonds	22	....	22
Corporate stock	11	....	11
Trade credit and miscellaneous	15	8	23
Proprietors' net investment	....	−8	−8
Total	$ 60	$ 19	$ 79
(−) Net increase in financial assets	36	4	39
(=) Net external finance	$ 25	$ 15	$ 39
Statistical discrepancy	10	....	10
Percentage of gross investment financed internally (deducting net proprietors' withdrawals)	90	68	82
Percentage of gross external finance obtained through debt	80	100	87

SOURCE: *Federal Reserve Bulletin,* August, 1959.

These decisions will be conditioned by the expected profitability of the assets to be acquired, by the costs of funds (including underwriting costs, implicit obligations to pay dividends, etc.), by tax considerations, and by the implications of financing decisions for the control and management of the firm. The following list describes the major types of financing available, with a brief discussion of how these factors operate.

1. *Credit from suppliers.* Most firms buy on credit from their suppliers and thereby incur trade credit liabilities, often represented by book entries. Such credits are usually short-term and may be fairly costly, beyond the first few days, if substantial discounts for cash payment are foregone.

2. *Bank loans.* Commercial bank loans are the great general-purpose source of business credit. However, the traditional basis of bank lending has been for working-capital purposes—to finance inventories or accounts receivable. In recent years, banks have become increasingly willing to make "term loans" of more than one year in duration, but two-thirds of bank business loans are still for less than one year. Bank loans to business are generally low-cost.

3. *Mortgage loans.* A mortgage is a loan secured by real property, land and buildings; thus mortgage funds are available only to firms which own such assets. Such firms can usually obtain mortgage loans fairly easily and at relatively low cost.

4. *Bonds.* Bonds are long-term debt instruments issued by corporations. They are usually claims against the general income and assets of the firm rather than against specific assets. A large and prosperous corporation can readily market bonds at low underwriting and interest costs, but most corporations find no public market for their bonds.

All four categories so far are debt claims which are legally binding obligations against the firm and (if unincorporated) its owners, with respect to both principal and interest. If these are not paid on time, creditors may sue the firm, and it may be reorganized or liquidated through bankruptcy proceedings.

Interest which a firm pays is deducted before determining profits subject to Federal profits tax. The Federal tax rate as of 1959 was 30 per cent of the first $25,000 of profits and 52 per cent of all profits over $25,000. For a large firm, the Federal government in effect pays half the costs of interest. However, interest received by creditors is fully taxable as income.

5. *Stocks.* The corporation can issue ownership shares against itself. The owners of a corporation (unlike those of a proprietorship or partnership) enjoy limited liability—their personal assets cannot be tapped to meet claims against the corporation. Corporation stocks can be transferred readily, and ownership claims can be subdivided into small fractions convenient for wide ownership.

Stockholders do, however, share in the risks and responsibilities of management. Owners of common stock usually have the right to vote on the choice of directors of the firm. The stockholder's claim against the income and assets of the firm has lowest priority. Neither the income or principal of a stock constitutes a legally binding claim against the firm, but there is also no maximum limit on the amount the stockholder may receive if the firm is successful.

All corporations issue stock, for they are all owned by someone. Out of more than 800,000 corporations, only about 5,000 are "publicly held" firms that enjoy a potential general market for stock issues. These firms manifest considerable separation of ownership from control, and stockholders participate chiefly as investors. Smaller corporations are usually owned by the same people who manage them, and stock ownership is often incidental to the management function. These firms have no real potential market for stock issues.

Even major corporations prefer incurring debt obligations to issuing new stock for external financing. (A large proportion of new stock is issued by public utility firms, which cannot readily reinvest profits.) Most firms prefer not to disturb existing patterns of stock prices, ownership, and voting strength. Tax considerations are also important. While interest costs are tax-deductible, dividends paid are not. Taxes must be paid on total profits, and dividends paid out of what is left. The result is that it may take twice as much earnings to pay a dollar of dividends as to pay a dollar of interest.

However, taxation works the other way at the investor level. Dividends enjoy a modest tax exemption; more important, capital gains resulting from selling an asset for more than its cost are taxed at a low rate. For wealthy persons, owning stock in a corporation which reinvests substantial profits is a convenient form of saving.

5*a*. *Preferred Stock.* While technically an ownership claim, preferred stock shares some of the financial characteristics of debt. It is often nonvoting, enjoys higher priority of claim than common stock, and usually is issued with a fixed percentage rate of dividend (although no fixed maturity value or date).

Availability of Funds. How much capital can a firm obtain? The amount and cost will depend on several factors. One is collateral. If the firm has saleable assets to secure a loan, it can obtain funds on reasonable terms. Lenders will also check on the honesty and efficiency of management and on the profit prospects for the firm. They will be concerned about the amount of ownership capital already in the firm, to make sure the firm is not borrowing too much. Equity capital provides a cushion to protect creditors against declines in income or asset values. Lenders will also check on the liquidity of the firm. A high ratio of current assets (cash, liquid assets, receivables, and saleable inventory) to current liabilities (accounts payable and other short-term liabilities) is a safeguard that the firm will meet its cash obligations when they fall due. Finally, the availability of credit to most firms will depend on the ease or tightness of national credit conditions.

Investment Appraisal. Almost any firm which obtains external funds subjects itself to expert scrutiny by the financial community as to its prospective profitability. Since these evaluations play a major role in determining the flow of capital available for various firms, it is important to consider whether their criteria are likely to accord with the public interest.

On the whole, it is in the public interest for funds to go where profitability will be high, for this is a sign of high productivity. Ideally, firms make profits because they are efficient, because they make products which rank high in public preference, and because they are in the forefront in developing new and improved methods and products. These are all qualities which financial institutions look for, and their evaluation efforts help direct capital into productive uses. Furthermore, firms seeking outside funds may be forced to take actions which promote their own efficiency—better record keeping, careful estimates of capital productivity, etc. Sometimes lenders can furnish useful advice to increase efficiency.

However, investment appraisal is also interested in the safety of funds, and here the public interest is not always served. Many lenders tend to minimize risk on individual loans rather than try to achieve actuarial soundness for an entire portfolio through interest rates proportional to risks. Safety considerations may lead lenders to stress low-productivity capital assets, such as distributors' inventories or commercial structures, to the detriment of higher-risk investment in complex machinery. Safety may lead to a preference for old, well-established firms and for larger firms rather than small, perhaps even a preference for firms enjoying a monopolistic position rather than those faced with intense competition. Yet some concern for safety is inevitable, especially under existing laws of limited liability and bankruptcy, through which the owner of a debt-ridden business can sometimes convert its assets to his personal benefit at the expense of creditors.

Some observers have expressed concern that the accepted pattern of business finance, dominated as it is by the practices of financial institutions as suppliers of funds, may have several undesirable features. There is alarm that too much debt is created, that risk taking and innovation are inhibited, and that small firms may find it unduly difficult to obtain capital. We shall examine these objections in more detail after we have looked at the investment policies of financial institutions.

THE HOUSEHOLD SECTOR

General Data. Table 10-4 summarizes the important aspects of household financial behavior in the period 1954–1958 inclusive. The financial assets acquired by households were predominantly claims against financial institutions or the government rather than primary securities issued by business, government, or households. About $55 billion was liquid savings assets, including cash, deposits, and savings bonds and shares, which are fixed in money value and highly liquid. Another $44 billion went into insurance and pension saving (including contributions to social security and other government programs). Only $29 billion went to acquire primary securities such as stocks, bonds, and mortgages.

Purposes of Financial Saving. We can understand the pattern of asset accumulation better if we look at the motives for personal saving. In a recent survey, 45 per cent of the people interviewed reported they saved for protection against emergencies, and 66 per cent saved for

Table 10-4

Household Saving, Borrowing, and Investment, 1954–1958 Inclusive

(Billions of dollars)

	Gross	*Depreciation*	*Net*	
Real assets acquired:				
Housing	$ 75	$ 17	$ 58	
Consumer durables	188	164	24	
Total	$263	$181	$ 82	$ 82
Financial assets acquired:				
Currency and demand deposits			4	
Savings deposits, shares, bonds			51	
Life insurance and pension saving			44	
Other bonds and mortgages			21	
Corporate stocks			8	
Proprietors' net investment, unincorporated business			−8	
Total			$120	120
Total assets acquired				$202
Borrowing:				
Mortgages		$ 52		
Consumer credit		14		
Other		5		
Total		$ 71	(−)71	(−)71
Total saving				$131
Net funds advanced to other sectors			$ 49	

SOURCE: Computed from data in *Federal Reserve Bulletin,* August, 1959.

specified expenditure goals, of which retirement, children's education, and buying a house were most often mentioned. These motives lead people to acquire insurance and financial assets possessing safety and liquidity, with little concern for income. By contrast, only 2 per cent reported they saved to bequeath money, and only 1 per cent saved to earn income. These last motives, which stress growth of capital and the yield from it, apply chiefly to the small portion of the population having high incomes but affect a large volume of saving.[5]

Additional evidence is furnished by Table 10-5, showing the percentage of households who saved or dissaved in certain ways in 1949 and 1950. Table 10-5 stresses the prevalence of life insurance as a savings medium. Life insurance premiums contain an element of saving when, under ordinary life policies, the level premium exceeds the current risks of death and current overhead costs. Changes in liquid assets and variations in indebtedness were the other two most widely prevalent forms of saving and dissaving.

Saving and Income Distribution. The aggregate volume and composition of household saving depend largely on the pattern of income distribu-

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[5] Eva Mueller, "Consumers' Attitudes toward Saving and Their Investment Preferences," *The Analysts Journal,* November, 1957, p. 3.

Table 10-5
Percentage of Spending Units Performing Various Types of Saving and Dissaving, 1949 and 1950

Category	*Percentage saving*		*Percentage dissaving*	
	1949	*1950*	*1949*	*1950*
Change in consumer debt	10	18	30	26
Life insurance	74	72	3	3
Change in mortgage debt	17	24	2	4
Non-Federal securities	2	2	1	1
Change in liquid-asset holdings	26	29	31	31

SOURCE: *Federal Reserve Bulletin,* September, 1951. Liquid assets include deposits and United States securities and exclude currency and accruing interest on savings bonds. These data are derived from surveys of consumer finances, published annually by the Federal Reserve. These surveys involve interviews with a sample of about three thousand households. The sampling error of this survey is small, but reporting errors are sometimes substantial, particularly in the treatment of assets and liabilities.

tion and on certain demographic characteristics of the population. Both the proportion of income saved and the forms of saving vary greatly with income levels. Survey data for the late 1940s indicate that 75 per cent of net financial saving comes from the 10 per cent of spending units with the highest incomes. Furthermore, the lowest 70 per cent of income receivers did not as a group make any net financial saving and went into debt as fast as their financial assets increased.[6]

Clearly, people with high incomes provide most of the net financial saving in the economy. They save large portions of their incomes, are interested in accumulating or preserving an estate, and derive substantial income from investments. Although they acquire large amounts of insurance and liquid assets, they put a relatively large proportion of their savings into business and investment assets which have substantial income or profit prospects but low liquidity. These people hold large amounts of financial wealth. A substantial part of it is in the form of personal trust funds, and much more of it is managed by professional investment counsel.[7]

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[6] *Federal Reserve Bulletin,* September, 1951, p. 1063. Saving excludes increased holdings of currency or consumer durables.

[7] In the early 1950s, the top 20 per cent of income recipients held more than half the bank deposits and savings bonds and paid about half the life insurance premiums. *Federal Reserve Bulletin,* December, 1951, p. 1526; July, 1954, p. 704.

The New York Stock Exchange estimated that in early 1959 about 12.5 million Americans owned stock in publicly held corporations. About 16 per cent of people with incomes over $7,500 owned stock, only 5 per cent of those below $7,500. *Share Ownership in America:* 1959, NYSE, New York, 1959.

In 1949, the top 1 per cent income group (over $15,000) held 65 per cent of the stock of publicly owned corporations. *Factors Affecting the Stock Market,* Senate Committee on Banking and Currency, 1955, pp. 88–92.

The bulk of the population does no appreciable net financial saving. They accumulate financial assets and debt at about the same rate. Their *real* wealth rises through increased ownership of housing and durable goods. For these persons, safety and fixity of principal, liquidity, and protection against risk are the chief objectives sought in financial assets. Thus their saving consists of acquiring liquid assets and life insurance. Most of them do not buy stocks, because they fear risks or merely because of ignorance of opportunity and procedures. Many of these people prefer arrangements which force them to save—insurance premiums, installment payments, or similar contractual obligations.

Other Determinants of Saving. There is a definite saving pattern over the normal life cycle. Typically, families go through a period of low net saving in early marriage, when durable goods are acquired. Saving then rises as the debts are repaid but may fall off sharply as children's education costs rise. Peak saving is likely to occur after children leave home, especially as retirement comes closer; but with actual retirement, saving probably will become negative.[8] Thus the age distribution and family status of the population will affect aggregate saving. Life expectancy will also be a factor in relation to the rate of saving needed for retirement needs.

For all these influences, the relative level of personal saving has shown a surprising degree of regularity. Although business-cycle changes cause variations, the normal tendency seems to be for personal saving to average 7 to 10 per cent of personal disposable income, a level which has prevailed through most of the twentieth century.

Saving and Economic Welfare. Aggregate saving may be evaluated in terms of its relation to the flow of spending and the volume of capital formation. In an economy plagued by deficient expenditure, a high level of financial saving may be harmfully deflationary; but the modern world tends more toward the dangers of inflation, under which circumstances financial saving furnishes a beneficial restraint. With the economy relatively near full employment, resources can be devoted to capital formation (ignoring government action) only if saving occurs, so that consumption is held below income.

What about the effect on the individual? Is saving good for him? Most of the motives for saving seem desirable—particularly, protecting against risks and providing funds for retirement and for children's education.

If anything, personal saving is likely to be too small. The psychological ability to save, particularly in financial assets, requires a long-range time horizon in which distant expenditure needs, known or unknown, are given emphasis. Most people find it difficult to keep these ends constantly in view; yet most of them also recognize their importance, in wiser moments. One consequence of this recognition is the popularity of arrangements whereby people force themselves to save by incurring binding commitments for insurance and pension programs, United States savings bonds, or Christmas club savings plans.

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[8] See James N. Morgan, *Consumer Economics*, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1955, pp. 12–22.

There may also be implications for economic welfare in the composition of personal saving. For instance, most personal saving flows through financial intermediaries rather than directly to the ultimate spenders. These intermediaries stress debt investments rather than equities and go heavily into low-risk assets. Their investments may tend to be concentrated rather arbitrarily in individual sectors of the economy, (e.g., home mortgages) rather than spread where the needs are greatest. We shall examine this problem later.

Dissaving. Net personal financial saving is the result of two opposing forces—a large volume of gross financial saving and a somewhat smaller volume of financial dissaving through borrowing or reducing liquid assets. Survey data indicated that in any given year between 1946 and 1950 about 63 per cent of spending units were positive savers financially, while 30 per cent dissaved and 7 per cent broke even.[9]

Most household borrowing is linked to acquisition of durable goods. About three-fourths of installment credit consists of IOUs originating in purchase of autos, other consumer durables, or household repair and modernization loans. Credit furnishes about three-fourths of the funds spent for new houses and about two-fifths of those spent for consumer durables.[10] Borrowing associated with the acquisition of durable goods does not reduce the household's net worth. Such borrowing is largely a middle-income characteristic. Poor people cannot obtain much credit, whether they want it or not. Rich people don't need it. So in 1950, about 55 per cent of household debt was owed by families with incomes between $3,000 and $7,500, and a higher proportion of families in this income range are in debt than those with higher or lower incomes.[11]

Mortgage loans are the largest items of household indebtedness. These loans often run for twenty years or more and are usually repaid in monthly installments. Home mortgages are well regarded by financial institutions, and they make loan funds available at relatively low interest rates—around 6 per cent at the end of 1958.

[9] *Federal Reserve Bulletin,* September, 1951, p. 1062.

[10] Author's estimate, derived from data in *Federal Reserve Bulletin,* July, 1958, p. 770; Board of Governors, Federal Reserve System, *Consumer Instalment Credit,* Washington, 1957, Vol. II, p. 193.

[11] *Federal Reserve Bulletin,* September, 1958, p. 1056; Raymond Goldsmith, *A Study of Saving in the United States,* Princeton University Press, 1955–1956, Vol. III, p. 122.

Consumer Credit and Welfare. Consumer credit takes two forms—credit obtained directly from the seller of goods, involving delayed payment, and loans of actual cash. In the first category are included charge accounts and service credit, which are commonly short-term and bear no interest. These accounted for 15 per cent of consumer credit outstanding in June, 1959. Other loans commonly involve a charge for interest and may run for two or three years.

The use of consumer credit may entail several disadvantages for the user:

1. Easy credit may lead people to spend too much altogether and to get excessively in debt. There is not much evidence that this occurs to a serious degree. Rates of default on consumer credit are very low (about 1 per cent), and the number of consumers whose debts are high in relation to their income is not great.[12] In part, this reflects the caution of lenders, who have strong incentives not to get borrowers unduly into debt.

2. Buying goods on credit may lead the buyer to pay too much for the product itself. Credit buyers may be more concerned with down-payment and monthly payment requirements for an auto or other durable good and pay little attention to the aggregate price.

3. Consumer credit is expensive in itself. Interest or "carrying" charges on personal loans may easily amount to the equivalent of an annual charge of 25 per cent or more. Calculating interest charges is complicated, and most installment borrowers probably do not bother.

As an example, a local loan company recently advertised that it would lend $500 repayable in 6 monthly installments of $90 each—a total of $540 to repay. This appears to represent a charge of 8 per cent—$40 interest on a $500 loan. Actually, the charge is much higher, since the average amount of money the borrower has to use is less than $500, and he has it less than a year. Since part of the principal is repaid each month, the actual average amount borrowed is only about $292; and since he has that for only 6 months, the annual equivalent is only about $146. Paying $40 interest for a loan of $146 represents a charge of about 27 per cent.

Such high rates may represent profiteering at the expense of gullible consumers, but many lending institutions find it necessary to charge such rates to cover the high costs and risks involved. Defenders of consumer credit also point out that, while the nominal percentage rates may be high, the actual dollar costs frequently are not, and that consumers do obtain a service they desire. However, if consumers knew how high the interest rates are, they might be more willing either to save in advance or to try to obtain bank loans, which are commonly much cheaper.[13]

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[12] In 1954, survey data showed 15 per cent of spending units with personal debt of 20 per cent of income or more. Morgan, *op. cit.*, p. 54.

In defense of consumer credit, however, there is no doubt that its availability has greatly helped to promote the acquisition of durable goods by consumers and to encourage their production by business. Whether or not consumers could possibly finance such purchases by saving first and buying later, the fact is that many prefer not to do so. They find it easier to save when they have forced themselves to do so by assuming contractual repayment obligations. And it is sound budgeting to pay for something as you use it. For most people, access to credit is an asset, not a detriment.

Serious problems remain in connection with the credit needs of low-income families. Some are led by unwise budgeting into credit expenditures they cannot manage. An even more serious tendency is that in times of financial emergency they often cannot or will not obtain credit through normal channels but turn to loan sharks and other illegal lenders. Paradoxically, past attempts to control "usury" often made it worse. Many states adopted maximum legal interest charges so low that respectable banks or other firms could not make personal loans on a paying basis. Consequently, illegal lending flourished. In recognition of this, many states subsequently adopted special small-loan legislation permitting higher interest charges on personal loans. Nevertheless, loan sharks still prey on poor and ignorant people in many areas of the country, frequently operating in league with criminal organizations and relying on intimidation and force to enforce their demands. Loan-shark extortion was revealed as a common manner in which organized crime preyed on the New York longshoremen. A recent study showed extensive loan-shark exploitation of Negroes and poor whites in Mississippi, where the legal maximum interest rate was 8 per cent.[14] More effective law enforcement would reduce the problem, but a more fundamental approach is to reduce the poverty and ignorance on which it feeds. The growth in the number of credit unions has increased opportunities for many to obtain credit where they work or through a union or fraternal organization.

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[13] Vance Packard reports, however, that many consumers are reluctant to borrow from banks. "The loan company's big advantage over the bank is its lower moral tone! The bank's big handicap . . . is its stern image as a symbol of unemotional morality. When we go to the banker for a loan . . . we are asking this personification of virtue to condescend to take a chance on us frail humans. In contrast, when we go to a loan company for a loan, it is we who are the virtuous ones and the loan company is the villain we are temporarily forced to consort with."—*The Hidden Persuaders,* David McKay Company, Inc., New York, 1957, pp. 66–67.

[14] *The Wall Street Journal* of December 26, 1957, quoted at length from a study of the Mississippi Economic Council. One typical case involved a loan of $10 for five weeks, for which total repayments under the original loan totaled $17.50. The council estimated that such loan sharks were cheating about $20 million a year from their victims with interest rates of 300 per cent and more, even though usurious loans could not be collected through legal processes.

GOVERNMENT

Governments have played an important role in the accumulation of real capital assets in our economy. Goldsmith's data indicate that in 1955 Federal, state, and local governments held about $200 billion of real assets, of which $120 billion were structures. Among these were included highways, schools, office buildings, and public utility facilities.

State and local government construction expenditures are financed in part by borrowing and are the chief purpose for such borrowing. By contrast, Federal government construction expenditures are not treated in any special way financially. Federal borrowing is done to support general budgetary deficits, which have commonly occurred either because of high defense expenditures or because of depression fiscal policies. Table 10-6 summarizes the asset and debt activities of governments in 1954–1958 inclusive.

Table 10-6
Government Construction and Borrowing, 1954–1958 Inclusive
(Billions of dollars)

	Federal	*State and local*	*Total*
Construction spending (including land)	$15	$55	$71
Gross external finance:			
Borrowing	6	22	28
Increase in social insurance reserves	3	7	10
Total	$10	$28	$38
(−) Acquisition of financial assets	6	16	22
(=) Net external finance	$ 3	$13	$16
(+) Internal finance	12	43	55
Total finance	$15	$55	$71

SOURCE: *Federal Reserve Bulletin*, August, 1959. Details may not add up to totals because of rounding.

THE ROLE OF FINANCIAL INTERMEDIARIES

Who Finances Whom? Now it is time to fit together the pieces of our financial jigsaw puzzle. We have examined the way in which each major nonfinancial sector of the economy acquires financial and real assets and obtains external funds. The pattern of net sector advances and withdrawals in the economy for 1954 to 1958, inclusive, is summarized in Table 10-7.

Consumers furnished ultimately the bulk of the funds used to meet the deficit spending of business, government, and foreign borrowers. As we noted, the bulk of consumer saving passed first to financial intermediaries, who then distributed it among the ultimate users. In addition, financial institutions were a large net source of funds themselves. They reinvested $16 billion of the income received on their previous asset holdings.

Table 10-7

Total Funds Advanced or Raised by Sector, 1954–1958 Inclusive

(Billions of dollars)

Advanced:		Raised:	
Consumers	$49	Business	$40
Financial institutions	16	Government	16
		Foreign	6
		Total	$62
		Statistical discrepancy	3
Total	$65		$65

SOURCE: *Federal Reserve Bulletin,* August, 1959.

Intermediaries. The role of specific types of financial intermediaries in linking saving with spending on credit is shown in Table 10-8. This shows the issue of individual types of claims and the acquisition of these by financial intermediaries.

Total funds obtained externally by all sectors came to over $180 billion, of which financial intermediaries furnished about $130 billion, representing roughly 70 per cent. Financial intermediaries furnished the same percentage of outside financing for business. About 85 per cent of household borrowing came ultimately from intermediaries. However, much of this was indirect, in the form of loans to firms selling goods on credit. Commercial banks, providing 29 per cent, were the largest single source of funds. Other savings institutions as a group provided the same proportion, while life insurance companies accounted for 19 per cent.

Table 10-8 shows only net changes in asset and liability positions by sectors of the economy. This is the most significant single measure of financial activity, but it requires qualification in several ways. First, there is considerable open-market activity in most types of financial claims against nonfinancial business—government securities, mortgages, private stocks and bonds, and commercial paper. Through such activity, financial firms may acquire assets without actually furnishing funds for current spending. Thus in the period 1954–1958 some sectors bought and others sold United States securities. Such trading increases mobility of funds among various sectors of the economy.

Second, by using net sector accounts for the standard, we discount a large part of the financial flow going from the repayment of past borrowing into new lending. For instance, leaving out of account funds repaid in the same year by the borrower, we can estimate that household net borrowing of $57 billion actually represented gross borrowing of about $210 billion offset by repayment of $153 billion.

Table 10-8

Financial Intermediaries and External Finance, 1954–1958 Inclusive

(Billions of dollars)

Institution	United States securities	State and local govt. securities	Corporate bonds	Corporate stock	Mortgages	Consumer credit	Other loans[d]	Total	Percentage
Funds supplied by purchase of specified assets									
Commercial banks	$ 5	$ 5	$ −1	..	$ 9	$ 5	$17	$ 39	29
Savings institutions[a]	*	*	2	..	34	2	1	39	29
Life insurance	−2	2	10	1	14	..	1	26	19
Corporate pension funds	*	..	7	4	..	..	1	12	9
Other financial[b]	1	3	2	4	*	5	3	18	14
Total financial	$ 4	$10	$ 19	$ 9	$58	$12	$23	$134	100
Funds raised by issuing specified liabilities									
Government	$ 6	$22	..	..	..	..	..	$ 28	
Nonfinancial business	..	..	22	11	18	..	15	66	
Households	..	..	..	..	52	14	5	71	
Financial business	..	..	4	7	..	..	3	13	
Foreign	..	..	1	1	..	..	3	5	
Total	$ 6	$22	$26	$18	$70	$14	$26	$183	
Percentage from financial institutions[c]	65	45	75	50	85	85	90	73	

Percentage of sector finance from financial intermediaries

Government	50
Nonfinancial business	70
Household	85

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[a] Savings and loan associations, mutual savings banks, credit unions.

[b] Investment companies, nonlife insurance, brokers, etc.

[c] Percentages are calculated from rounded figures and are rounded to the nearest 5 per cent (except the last).

[d] Other loans excludes trade credit; thus total external finance by business differs from Table 10-2.

* Less than $0.5 billion.

SOURCES: *Federal Reserve Bulletin*, August, 1959; and earlier Federal Reserve mimeographed releases. Details may not add up to totals because of rounding.

Considerations of this sort remind us that financial intermediaries spend a good bit of effort rearranging the composition of their assets. In the process, they are continually redirecting a very large flow of funds coming through gross financial saving. It is through this process, for instance, that business depreciation funds find their way into investment—often by a different firm. This would be an important operation even if financial firms experienced no net increase in their assets from year to year.

CORPORATE STOCK

Corporate stock is in a class by itself financially. Whereas most business debt financing comes through financial intermediaries, most stock is sold to individuals. New stock issues furnished only about 20 per cent of corporate external funds in 1954–1958. However, funds which corporations reinvest out of current profits are also technically the property of the stockholders and tend to raise the value of existing stock. In this section we shall consider stock issue, trading, and speculation and the operations of stock-buying intermediaries.

Stock Issue and Trading. New issues of corporate stock (like most bond issues) are often marketed through investment bankers. Investment banking is not banking in the usual sense; indeed, commercial banks are forbidden to engage in it. The investment bankers may "underwrite" a new issue, in which case they buy it from the issuing firm and resell it at their own risk in the expectation of a margin of profit, or they may sell it on commission with the issuing firm taking the risk. New stock is often issued by giving the existing stockholders of the issuing firm rights to buy the new shares. Such distributions may be handled through brokerage firms, although investment bankers may still underwrite the issue.

In terms of money volume, the issue of new stock is small in relation to trading in existing shares. It is in the latter activity that organized stock exchanges and brokerage firms play their major roles.

Most stock trading passes through the hands of brokerage firms. Generally, the broker merely buys from and sells to others on behalf of his clients and collects a commission as his own compensation.

Trading in stocks may be carried on through organized markets or "over the counter." At the end of 1958, there were eighteen organized securities markets in the United States. However, about 85 per cent of all stock-exchange trading by value is conducted on the New York Stock Exchange. Stock-exchange listing is highly selective. Out of more than 800,000 corporations, there were at the end of 1957 only about 2,200 listed on exchanges, half of them on the New York exchange. However, stocks of listed companies accounted for nearly 80 per cent of the value of all stock.[15] A stock exchange is simply a public market place in which stock trading takes place through competitive bidding in which all prices must be shouted aloud and all transactions concluded publicly. Prices can fluctuate from minute to minute as supply and demand vary.

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[15] *SEC Annual Report,* 1958, pp. 58–59; *NYSE Fact Book; Federal Reserve Bulletin,* August, 1959, p. 1056, for total value of stock (excludes intercorporate holdings).

A large volume of stocks are also traded over the counter. Such trading generally takes place by telephone arrangements among brokers and dealers, with no central meeting place. The number of firms whose stock is so traded averaged about 40,000 to 50,000 in the late 1950s, but less than 5,000 were actively traded. Such trading covers stocks of important financial firms and some major industrial firms who do not wish listing on exchanges. Most bond trading is also carried on over the counter. The dollar volume of stock trading over the counter was estimated to be about one-third of that on organized exchanges in a survey based on 1949 data.[16]

Speculation. Stock prices fluctuate substantially. In part this is because corporate profits and dividends fluctuate, in part because expectations of future profits and dividends change, and in part because people buy and sell on the basis of what they expect stock prices themselves to do. As a result, stocks are a prime object of speculation.

Much speculation is conducted on credit by means which can enhance the potential gains (and losses). The "bull" who expects stock prices to rise can buy "on margin" by borrowing a part of the purchase price of the stock from his broker (at interest). The amount of margin he must put up (his down payment, in other words) depends on current Federal Reserve regulations and on the standards of his broker or bank. In early 1959, margin requirements were at 90 per cent, so that not more than 10 per cent could be borrowed. Earlier in the 1950s, requirements went as low as 50 per cent. Suppose a speculator purchased $10,000 worth of stock on 50 per cent margin by putting up $5,000 of his own money. If the stock rose 10 per cent in price, he could sell it for a profit of $1,000, a gain of 20 per cent on his own capital. The larger the amount of credit used, the bigger the percentage gain which can be obtained if the price rises. But this works both ways—if the price falls, the loss may be greater.

Short selling is a mysterious device whereby the "bear" who expects the market to fall can profit by the fall. To sell short, the bear borrows *stock* from his broker and sells it, with the promise to return it later.[17] If the price falls, he can buy back the stock cheaply and return it. Of course, if the price should rise, he might be obliged later to buy the stock for more than he had sold it and could lose heavily. Regulations prohibit short sales which force the price below its existing level.

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[16] Irwin Friend et al., *The Over-the-counter Securities Markets,* McGraw-Hill Book Company, Inc., New York, 1958.

[17] Where does the borrowed stock come from? From the people who buy on margin. They must agree to allow the broker to lend it as a condition of getting loans.

Stock Trading and Welfare. The facilities for securities trading perform two basic functions. One is to increase the ease with which stocks can be transferred and the knowledge of the terms on which transfer can be made. Knowledge and ease of transfer probably increase the willingness of investors to hold stocks. This helps to increase the volume of saving and investment and to shore up the important equity-capital side of business finance.

The second function of the securities-market institutions is to influence the flow of new capital into investment. Although new issues of stocks are not marketed through the exchanges, the prices in effect there determine the prices at which new issues can be sold. This function places a responsibility on the securities institutions to help create a price structure which will direct funds into firms which can make best use of them.

Does this direction of funds actually occur? Certain tendencies help to promote it. In recent years, investment counsel has stressed stocks of companies which are efficient and progressive, which are producing products for which demand is likely to rise, and which are leading innovators in cutting costs and providing new or improved products. It is in the public interest that such firms should have easy access to capital, and the high prices for stocks of this type have promoted such access. However, this process works chiefly for the larger, well-known companies with a public market for their stock.

What about speculation? Does it promote useful objectives? Sometimes it does, and sometimes it doesn't. To be desirable, speculation ought to help stabilize security prices (to enhance stock liquidity in the true sense) and to lead to values on individual stocks proportional to the social utility of added investment in their companies.

Some observers have argued that profitable speculation is usually stabilizing. The speculator has an incentive, they claim, to buy when prices are low and sell when they are high. By doing this, he tends to raise the low prices and lower the high. Critics point out that speculators are concerned with the direction of stock-price movements, not their level. Rational speculators are likely to buy when prices are rising, because they expect the rise to continue, and to sell in a falling market. Such trading clearly helps aggravate the unstable movements in either direction.

Statistics on the value of stock-market credit outstanding and on the volume of short-sales contracts show that such speculation tends to affect the market in an unstabilizing manner. Thus, at the time of the 1929 market peak, margin buying was at an all-time high, whereas short selling had dwindled away to nothing. As stock prices subsequently declined, margin buying fell and short selling rose. During the substantial drop in stock prices in 1957–1958, margin buying again fell and short selling rose, while both tendencies reversed when stock prices began to rise in 1958. Such behavior does not help to stabilize prices. In mitigation, it may be noted that outstanding margin and short accounts together account for only about 2 per cent of the value of listed stocks. But speculative trading accounts for a much larger proportion of current transactions—15 to 27 per cent in sample studies.[18]

Speculation also does not necessarily contribute to stock values in proportion to the potential utility of new investment in particular firms. To a speculator, the present value of a stock depends on what its price is likely to be in the near future, which depends more on what other people think of it than on inherent characteristics of the firm.[19]

Much opposition to speculation arises from a feeling that it is merely a form of gambling and therefore immoral. Granted that the motivation is often the same, speculation differs from gambling in several important ways. First, the odds are favorable. Since stocks tend to rise in the long run, a well-diversified and patient bull speculator has a good chance to make profits. Second, speculation may lead to analysis which helps direct funds into beneficial uses. Third, since prudent speculation calls for buying, speculation probably creates some additional saving and investment. However, a strong case cannot be made for stock speculation. On the other hand, drastic measures to curb it (beyond the 90 per cent margin requirement) might interfere with beneficial investment and with the useful activities of market specialists.

Institutional Investors in Stocks. Most major financial institutions—commercial banks, savings institutions, life insurance companies—buy little or no corporate stock. Federal Reserve estimates indicate that at the end of 1957 nearly 90 per cent of corporate stock was held by individuals (including trust funds, which we shall discuss later). Among financial institutions, the leading holders are pension funds and investment companies.

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[18] *NYSE Fact Book*, pp. 33, 44; *Factors Affecting the Stock Market*, Senate Committee on Banking and Currency, 1955, p. 109; *The Security Markets,* Twentieth Century Fund, New York, 1935, pp. 63–96, 271–396.

[19] According to Keynes, "professional investment may be likened to those newspaper competitions in which the competitors have to pick out the six prettiest faces from a hundred photographs, the prize being awarded to the competitor whose choice most nearly corresponds to the average preferences of the competitors as a whole; so that each competitor has to pick, not those faces which he himself finds prettiest, but those which he thinks likeliest to catch the fancy of the other competitors, all of whom are looking at the problem from the same point of view. It is not a case of choosing those which, to the best of one's judgement, are really the prettiest, nor even those which average opinion thinks the prettiest. We have reached the third degree where we devote our intelligence to anticipating what average opinion expects the average opinion to be." John Maynard Keynes, *General Theory of Employment, Interest, and Money,* Harcourt, Brace and Company, Inc., New York, 1936, p. 156.

Investment companies ("mutual funds") are intermediaries which obtain funds chiefly from selling stock in themselves and use the funds chiefly to buy stock in nonfinancial firms. They offer the investor the advantages of diversification and expert management. In recent years they have grown rapidly—in 1955–1958 inclusive they received and invested about $1 billion annually. By the end of 1957, they held about $15 billion of assets, including at least $10 billion of stocks.[20]

A large volume of stocks is also held by personal trust funds administered by commercial banks. Trust funds are often established by wealthy individuals to provide income for their survivors, and they possess certain advantages in reducing estate-tax liabilities. Ownership is highly concentrated.[21]

A survey by the American Bankers Association indicated that in 1958 bank-administered trust funds amounted to about $50 billion, of which two-thirds was invested in corporate stocks.[22]

Concentration of Ownership. The bulk of corporate stock is owned by a relatively small proportion of the total households in the country. Some observers have deplored this condition. They feel that many families could benefit by stock investment. They believe that wider ownership of business would create a healthier public opinion toward business and reduce the dangers of "radical" and "unsound" government policies. Wide ownership might also substitute democratic control of management for existing oligarchic patterns.

There is little doubt that many more people might find stock investment advantageous than have tried it so far. While stocks are not well suited for saving objectives requiring liquidity and fixity of capital value, they are better adapted for long-run accumulation goals, involving such objectives as children's education and retirement. This advantage is great if inflation is in prospect.

The advantages to society as a whole are not so clear. Wide ownership of stocks might give rise to dangerous hostility to business in a period when stock prices were declining. There might be strong demands for such unwholesome measures as higher tariffs, subsidies, antitrust exemptions, and other measures to suppress competition and bolster profits. As for the control of industry, it is almost axiomatic that the more widely a company's stock is owned, the less interference with incumbent management is likely to occur. Only where a few stockholders can muster a large block of stock can they really control the company. Fortunately, there are many ways in which corporate management is held responsible to the public interest.

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[20] *SEC Annual Report,* 1958.

[21] At the end of 1957, national banks reported 248,000 personal trust-fund accounts with book value of $16 billion, for an average of about $65,000. *Annual Report of the Comptroller of the Currency,* 1958, p. 131.

[22] ABA mimeographed release, July 13, 1959.

Actually, the number of persons owning stock, while still small, has been growing rapidly. The New York Stock Exchange estimated that the number of stockholders of public corporations nearly doubled from 1952 to 1958, reaching a total in excess of 12 million.

Government Regulation of Securities Markets and Institutions. The great wave of public indignation which followed the stock market crash led during the 1930s to passage of numerous regulatory laws covering many aspects of the securities business. The Securities and Exchange Commission was established and given the chief regulatory jurisdiction. Its regulations are aimed primarily to assure the general public access to complete and accurate information about securities and to protect them from certain dishonest, careless, or otherwise harmful practices. In brief, these requirements include:

1. Each corporation issuing new securities must file registration statements with the SEC and publish a prospectus available to investors. In this material it must set forth extensive data on the condition of the firm, proposed use of security proceeds, costs of issuing, etc. However, issues under $300,000 and all private placements are exempt.
2. Officers of corporations must provide information on their ownership of stock, so that taking unfair advantage of inside information can be controlled.
3. Both law and exchange rules prohibit or limit manipulation of the stock market. In the past, collusive "pools" with large funds could exercise monopolistic influence on prices, driving them up and down artificially and often, with the aid of false information, drawing outsiders in to be bilked.
4. Most persons connected with securities trading, including brokers, dealers, investment bankers, and investment advisers, are prohibited from disseminating false or misleading information about securities. Many such establishments are required to register with the SEC and to file financial information about their own personnel and operations.
5. Investment companies are required to register with the SEC and to provide it with information about their operations. The Commission can block practices which appear unfair, and the investment companies are limited in the amount they can invest in an individual firm.
6. The Federal Reserve has authority to prescribe minimum margins for stock-market credit.

7. Commercial banks are forbidden to operate as investment bankers or investment companies.

These controls and others enforced by government or by interested private organizations have not completely eliminated fraud and abuse, but they have vastly improved the general degree of honesty and integrity in this important area of the economy.

SUMMARY

Financial institutions make their major contribution to economic welfare by aiding in the performance of saving and accumulation of real assets. Financial saving contributes to the welfare of individuals by enabling them to protect themselves against adversity and to rearrange their expenditures advantageously over time. For society as a whole, saving releases productive resources which become available for capital formation. Increases in the nation's supply of capital goods are an important contribution to economic progress and rising productivity.

Most of the financial saving of households, nonfinancial business, and government pours into financial intermediaries, either to repay debts or to acquire such assets as savings deposits and shares or life insurance and pension rights. Intermediaries in turn provide most of the external financing from which most net capital formation is financed. Commercial banks, savings institutions, and life insurance companies perform the bulk of this service. In the process, financial intermediaries reconcile the desires of most households to hold their savings in safe, liquid, fixed-value assets with the fact that those business firms and households who want external funds are not able or willing to issue claims against themselves having such features of safety, liquidity, and fixity of value. The extent of financial saving and external financing would be far smaller without financial intermediaries.

However, most of the assets and liabilities of financial intermediaries are debt claims. Corporate stocks, which represent ownership claims, are held mostly by individuals, and ownership is concentrated among the wealthy. Investment bankers and brokers handle new issues and transfers of existing shares. Although stock speculation is an intriguing pastime, its social benefit is questionable.

QUESTIONS FOR STUDY

1. "Most households are not net financial savers, but they are net *real* savers." Explain.

2. Suppose you expect stock prices to rise 10 per cent in the near future and have $1,000 to invest. How much profit could you make buying on

margin if the margin were 50 per cent? 90 per cent? 10 per cent? Suppose prices fell 10 per cent instead and you decided to sell, fearing further declines. How much would you lose in each case?

3. A prospective automobile purchaser obtains a loan from his bank. He signs a note for $1,200 to be repaid in 12 monthly installments of $100 each. The bank charges him 6 per cent interest on the total (i.e., $72) and deducts it in advance, giving him $1,128 in cash. Estimate the actual annual interest rate involved.

4. It is frequently claimed that present tax laws and the inflationary tendency in the economy encourage businesses to issue bonds rather than stock and encourage investors to buy stock rather than bonds. Why is this? What consequences would you expect for stock and bond prices and yields?

5. "Contrary to the traditional view that debt is a burden, most people nowadays use debt as a way of becoming wealthier." Explain.

SUGGESTED READINGS

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CHAPTER 11

FINANCIAL INSTITUTIONS: ASSETS AND LIABILITIES

INTRODUCTORY

Financial institutions play an important role in linking saving with investment. In addition, leading financial intermediaries promote economic welfare by creating unique financial claims against themselves. These include savings deposits and shares, insurance and pension rights, and money itself, in the form of checking deposits. In this chapter we shall examine more closely these types of financial claims, the institutions which create them, and the asset practices of those institutions. Since the government issues claims of similar character and has great influence over the activity of the other institutions, we shall include here also a discussion of the role of the Federal government.

At the end of 1958, about $270 billion of the claims against financial intermediaries consisted of checking deposits and savings deposits and shares. Table 11-1 summarizes the composition of these assets, as well as similar government liabilities.

The economic importance of checking deposits lies in their monetary function as a medium of payment that promotes efficient specialization and exchange. Checking deposits are superior to currency in safety, convenience, and record keeping, but this superiority depends on performance by the banks of much costly activity in handling checks and keeping records.

Savings deposits and related assets encourage saving and thereby release resources for capital formation and aid in the savings objectives of protection, accumulation for subsequent expenditure needs, etc. Savings accounts also pay income. While households held only about one-third of the currency and demand deposits, they held about 95 per cent of the $200 billion of savings assets.

Table 11-1
Money and Liquid Savings Assets, December 31, 1958
(Billions of dollars)

Type of asset	Issued by					Total	Held by households
	Commercial banks	Savings banks	Savings and loan associations	Credit unions	Government		
Currency and demand deposits	$121	..	..	..	$30	$151	$ 57
Savings deposits (*D*), shares (*S*), bonds (*B*)	66 (*D*)	34 (*D*)	48 (*S*)	4 (*S*)	48 (*B*)	200	191
Total	$187	$34	$48	$4	$78	$351	$248

SOURCE: *Federal Reserve Bulletin,* August, 1959.

Commercial banks accounted for slightly more than half the total of money and savings liabilities; the government (including the Federal Reserve banks) provided 22 per cent; and the remaining savings institutions furnished the other one-fourth. Each of the four types of institutions specializes in creating the types of liabilities indicated. We shall examine the operations of the four in the following sections.

COMMERCIAL BANKS—ASSETS AND LIABILITIES

Sources of Loan Funds. The ability to create money gives commercial banks a unique position as financial institutions, since they need not wait for funds to be brought to them through financial saving but can create the funds. However, their ability to do this is severely limited on one side by reserve requirements and on the other side by the possibility that the public will prefer to hold currency rather than deposits. In practice, lending based on new money is a very minor portion of total bank operations. Commercial banks serve as conventional financial intermediaries in three kinds of lending:

1. They can expand loans when the public decides to hold time deposits with them instead of currency or demand deposits.
2. They can expand loans with funds obtained by issuing stock or by retaining current earnings.
3. They can make an enormous gross volume of loans by simply lending again the funds flowing in from repayment of past loans.

Some critics have noted that there is no logical need for the functions of lending and money creation to be combined in one set of institutions, and they object to the banks' ability to earn income for performing a function (money creation) which is basically governmental. Some have felt that depriving banks of the power to create money would ease the problems of monetary policy. We shall deal with this aspect of the problem later. However, much of the income from bank loans goes to pay the costs of managing checking deposits—a highly useful economic function. As an illustration, in 1958 member banks of the Federal Reserve System spent about $2 billion in managing checking deposits. Since service charges came to only $400 million, some $1.6 billion or more of costs remained to be covered out of interest and other earnings.[1] This operating expense for a service to depositors greatly exceeded the $650 million paid to stockholders in dividends.

Bank Regulation. The regulation and policies of commercial banks are dominated by the fact that they are custodians of the largest portion of our money supply. Because most of their liabilities are payable on demand, it is important that their assets be liquid enough to meet such demand. To protect the safety of deposits, the solvency of the banks and the safety of their assets must be safeguarded. Finally, the banks occupy a position of trust which must be fulfilled honestly and efficiently, with protections against dishonesty. These considerations give rise to what may be called the qualitative aspect of bank regulation. By contrast, the public's concern over the quantity of money gives rise to the quantitative monetary controls which we stressed in Part 2.

The traditional loan and investment policies, still embodied in bank charters, regulatory statutes and regulations, and, most important, in the rules of thumb of banking, are basically as follows:

1. Bank loans should be predominantly short-term, chiefly to provide working capital.
2. Banks should not invest in stocks or real estate or other items of high risk and uncertain value.
3. Banks may invest to a limited degree in long-term bonds.
4. Individual bank loans and investments should be low in risk.

The logic of these principles was that by concentrating on short-term loans, chiefly to merchants for carrying inventories, the banks would protect both their liquidity and their solvency. Since the loans were

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[1] See *Federal Reserve Bulletin,* June, 1959, p. 650. No direct evidence is given on allocation of costs to deposit management, but the following items certainly derive chiefly from this expense:

	Billions
Wages and salaries other than officers and directors	$1.3
Depreciation	0.1
Other current expenses	1.1
Total	$2.6

short-term, banks could quickly obtain added cash in time of need by refusing to renew existing loans, which would quickly be repaid. Since the loans were low-risk, the likelihood of loss or default would be minimized.

Commercial-loan Theory. Some banking theorists went beyond this and argued that this "commercial-loan" theory of banking would also operate beneficially for the economy as a whole. By limiting the amount of loans to the volume of inventories already produced, one could be sure that loan expansion would not be inflationary. Increases in M could occur only (in the usage of the modified Fisher equation) in reflection of increases in O, so that P would not change. When expressed in such terms, the theory is easily shown to be fallacious. Loans are made on the value of inventories, not their physical quantity, and there is nothing to prevent their value from rising—indeed, adherence to this principle would tend to make M rise whenever P was going up. Furthermore, limiting bank loans to short-term commercial objects is in some cases not sufficient to protect liquidity and solvency; and in any event, it is not the only way to protect them.

So long as the economy as a whole remained prosperous, the commercial-loan principle would tend to protect bank liquidity—although the need for liquidity itself would tend to be less urgent. Should an individual bank be pressed for funds, it could indeed allow its loans to mature and collect the proceeds. However, as we noted in Chapter 3, loans would tend to be repaid partly in checks against the bank itself (which would not add to its liquidity).

Should the economy go into a slump, however, the safeguards afforded by the commercial-loan system might fail. Borrowers would have increasing difficulty in repaying their loans (although many of them might themselves be solvent in the long run). Those who could repay would do so chiefly by writing checks, which would reduce deposit liabilities for the banking system as a whole but would not provide any cash. If banks generally were pressed for cash, they might engage each other in a great tug of war for existing cash. In the process, loans and deposits might be greatly contracted, a move adding to the general depression and, in particular, worsening the ability of debtors to pay up. Thus the commercial-loan principle would probably provide a safeguard for individual banks during good times but could not really protect the banking system as a whole, particularly during periods of depression.

Contemporary thinking stresses that any asset is liquid, whatever its maturity, if it can be sold at a certain price or used to obtain a loan. For the economy as a whole, such sale and loan opportunities are most certain when provided by the government.

Problem of Risky Loans. Traditional banking theory also stressed unduly the need for safety in individual loans. This ignored the factors of diversification and income. The over-all risk attached to a diversified group of assets may be much less than that for any individual item. If the interest charged on individual loans is roughly proportional to the risk, a diversified portfolio of risky loans should pay off just as well as one of little risk.

Banks have been unwilling or unable to follow this more liberal attitude toward risk for several reasons. One is that they are usually subject to maximum limits on the interest rate they charge or prefer as a matter of policy not to charge high interest rates. Probabilities of loss may be hard to calculate, and many bankers are reluctant to show large write-offs for bad debts.[2] One response to bank reluctance to make risky loans has been the development of "second-layer" intermediaries such as sales finance or consumer finance companies, who borrow from banks and relend to higher-risk borrowers at rates above bank levels.

Loans and Investments—Regulation. To illustrate the pattern of asset regulation, we shall now summarize some of the regulations to which national banks are subject:

1. They may not lend more than 10 per cent of the amount of their capital and surplus to any single borrower, except for certain types of loans. Since capital and surplus seldom exceed one-fifth of total assets, this restriction means that debts of one borrower are not likely to exceed more than 1 or 2 per cent of the bank's total assets.
2. They may not lend on their own stock as collateral.
3. They may not lend more than $2,500 to any officer of the bank.
4. They may not lend on mortgage more than an amount equal either to their capital and surplus or to 60 per cent of their time deposits, whichever is larger. Mortgages must not exceed two-thirds of property value nor run for more than twenty years; however, these limits do not apply to mortgages with FHA or VA guarantee.

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[2] "A questionnaire mailed to more than 15,000 commercial banks . . . in 1947 brought forth these significant findings: Of the nearly 8,000 banks which responded, half reported that they had refused to make some business loans which appeared to be sound credit risks. Several reasons were given, of which the most frequent were: the loan exceeded the bank's legal limit; the requested maturity was too long; the bank lacked experience with the requested type of loan, or the applicant was launching a new enterprise. Behind these reasons lay the restrictions on risk assumption imposed by banking laws and bank examining officers, and the need for liquidity imposed by the slender capital resources and the high ratio of demand deposits which characterize American banking." Raymond Saulnier, Harold Halcrow, and Neil Jacoby, *Federal Lending and Loan Insurance,* National Bureau of Economic Research, Inc., Princeton University Press, Princeton, N.J., 1958, p. 253.

5. Loans on stocks must conform to the margin requirements set by the Federal Reserve. Thus under the 90 per cent requirement in effect at the end of 1958, banks would be forbidden to lend more than 10 per cent of market value (with a few exceptions).

6. The banks are prohibited from dealing in stocks, real estate, and commodities, except where such assets are acquired through foreclosure of a secured loan.

Other Protective Regulation—Capital and Reserves. Besides regulating the composition of bank assets, traditional bank regulation has tried to protect creditors of banks through maintenance of high requirements for capital or reserves. Minimum capital requirements ensure that the bank's assets will exceed in value the debt claims against them. If a bank maintains capital accounts equal to 20 per cent of its total assets, it can sustain a decline of 20 per cent in the value of those assets before the depositors' claims are impaired.

Early American banking stressed large capital requirements. However, such requirements were frequently evaded by lending money to stockholders on the security of their stocks—a practice now generally prohibited. Currently, banks are not subject to a general minimum ratio of capital to total assets. Instead, they must usually maintain minimum absolute amounts of capital depending on the size of their community. At the end of 1958, commercial bank capital accounts totaled about $19 billion, compared with total assets of $237 billion—a ratio of about 8 per cent. This amount clearly did not represent a major protection for depositors.

Another approach to the same problem has been to prescribe minimum cash reserves which banks must maintain. Reserve requirements were adopted in the first national banking act, in 1863, chiefly as a protection for depositors. But many critics have observed that funds which banks must hold cannot be paid out; thus required reserves may almost by their nature fail to provide liquidity. In any event, reserve requirements under the Federal Reserve System have long since ceased to serve chiefly as protection. They are now almost exclusively used as a technique of controlling the total volume of bank credit.

Modern Protections of Liquidity and Solvency. Although extensive vestiges of regulation of loans, capital, and reserves remain in operation, in recent years the protection of banks and their depositors has taken new forms. Among them are the following safeguards:

1. *Deposit insurance.* Virtually all commercial banks are now members of the Federal Deposit Insurance Corporation, which insures deposits up to $10,000. Existence of such insurance has nearly eliminated the old problem of "a run on the bank," under which panics might drive a bank into failure. However, the deposit insurance program in-

volves supervision of banks and continues the traditional emphasis on minimizing loan risk.

2. *The Federal Reserve.* Commercial banks can obtain cash or added reserves by borrowing from or selling securities to the Federal Reserve banks. This protects liquidity, though not solvency.

3. *Government guarantees of individual bank assets.* In the late 1950s about 40 per cent of bank assets were protected by the government against loss. Included in these protected assets were reserves with the Federal Reserve, United States government securities, government-insured mortgages, and smaller amounts of loans guaranteed by other government agencies.

These new forms of protection have reduced the urgency of having banks adhere to the traditional banking patterns, particularly in short-term lending.

Enforcing the Rules—Bank Supervision. Each bank in the United States is the creature, by charter, of either the Federal government or one of the states. The chartering authority generally requires that each bank must submit periodic reports of its condition and be prepared to undergo detailed examination of its affairs on its own premises without advance notice at least once a year. Thus national banks are supervised by the Comptroller of the Currency, and each state has its own banking commission or department. In addition, the Federal Reserve and Federal Deposit Insurance Corporation maintain their own regulations and supervisory operations.

Bank examination is designed to check on compliance with the regulations concerning loans, reserves, and capital; to check on the accuracy of bank statements; to guard against possible dishonesty by bank employees; and to see that the bank is solvent and its assets sound.

Although the general principle of bank examination is valuable, questions have been raised about its application. There are a number of supervisory agencies with overlapping jurisdiction and dissimilar objectives. Some critics feel that bank examination tends to overemphasize conservatism in lending on risky assets. In particular, bank examination standards of credit quality may become more exacting in depression and may impede credit expansion when it is most needed. On the other hand, relaxed standards may unduly encourage credit expansion during boom periods.

Asset Policy and Welfare. We noted in Chapter 3 the wide variety of bank loans (see Table 3-5). Commercial banks have been called the "department stores" of finance because of this variety. Besides loans to business and agriculture, commercial banks engage extensively in home-mortgage and personal loans. They provide a wider range of funds than any other type of lender, and bank funds are likely to be available to the majority of business firms and consumers as cheaply as from any other source. Furthermore, banks have shown flexibility in broadening their asset policies over the last half century. Term lending to business has grown to the point where about one-third of member bank business loans are for more than one year, and some run as long as ten years. Home-mortgage and personal loan operations have been enlarged.

But is it desirable that banks should restrict themselves so completely to debt claims? Should they be more willing to make long-term loans and to acquire high-risk, high-interest assets? In many European countries, commercial banks invest directly in industrial stocks and real estate. However, there is little demand for such activity in the United States. Bankers themselves are not eager to get into such investments, which raise problems of management not currently faced. European experience has indicated that a close ownership link between banks and nonfinancial business may have unhealthy effects on competition among nonfinancial firms as well as make banking unduly risky. Public opinion in the United States, fearing undue concentration of economic power, has been extremely wary of close ties between banks and other business.

A stronger case can be made for the idea that banks could usefully make more risky loans, provided interest rates were commensurate. The growth of such firms as factors and sales finance and consumer finance companies testifies to the soundness of such loans as a group and to the existence of borrowers who might be accommodated more cheaply by the banks.

PROBLEMS OF COMPETITION AMONG BANKS

One of the sorest areas of controversy in banking policy consists of policies dealing with competition. Competition is desirable to stimulate efficiency, progressive management, and good treatment of borrowers and depositors. Yet too much competition might impair the solvency of banks and interfere with their important functions. Consequently government policy in this area has been ambiguous.

Government policy tends to restrain competition in several ways. Banks are generally subject to maximum limits on interest they can pay on time deposits, and most are prohibited from paying interest on demand deposits. Entry into banking is limited by capital requirements and by the ability of supervisory authorities to refuse charters for other reasons, which may include (informally) pressure from existing banks.

Concentration. Commercial banking is characterized by extreme variations in bank size. Most banks are relatively small, but a large portion of total banking business is done by a small group of giant institutions. This pattern is readily apparent in the data on classes of banks in Table 11-2.

Table 11-2
Types and Sizes of Banks, December 31, 1958

	Number	*Total assets, billions*	*Average assets, millions*
Central reserve city banks, New York	18	$ 36	$2,025
Central reserve city banks, Chicago	14	9	648
Reserve city banks	272	80	293
Subtotal	304	$125	$ 411
Country member banks	6,006	76	13
Nonmember banks	7,191	36	5
Total	13,501	$237	

SOURCE: *Federal Reserve Bulletin,* June, 1959.

The 18 giant Wall Street banks averaged more than $2 billion of assets each and accounted for the same volume of assets ($36 billion) as did the 7,200 nonmember banks. The 304 banks in the top classifications accounted for 53 per cent of total banking assets, leaving 47 per cent for the other 13,200 banks.

This degree of concentration has been promoted in part by mergers. The three largest New York banks, which accounted for about $20 billion of assets in early 1959, were all created in the 1950s by mergers of preexisting giants.

This pattern of concentration has aroused alarm in some quarters. Critics fear that competition will be unduly impaired within banking and also that individual big banks will form alliances with giant industrial firms in a manner adverse to competition in industry generally. Past experience, especially prior to 1933, provides some basis for concern.

The Clayton Act of 1914 attempted to deal with the problem of banking concentration. It imposed limits on interlocking directorships in industry and in banking and gave the Federal Reserve Board power to prevent bank mergers which might substantially lessen competition or create a monopoly. However, this provision extended only to mergers consummated by one bank's purchasing stock in another. Most mergers currently occur through purchase of assets and are not very rigorously controlled.[3]

Branch and Group Banking. The issue of concentration has been raised in connection with branch banking and with operations of bank holding companies ("group banking").

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[3] See *Regulation of Bank Mergers, Hearings before the Committee on Banking and Currency,* United States Senate, 1959.

The structure of American banking is unusual in its large number of banks, most of which operate a single office. Because for many years the chartering of banks was a state government function, there are no banks whose individual operations directly occur in more than one state. Within individual states, however, there has been much dispute about permitting banks to develop branch systems. On the whole, it has been the larger and more aggressive banks which have sought to undertake branch operations and the smaller banks which have objected—particularly where the branches would enter areas already served by unit banks. The smaller banks have protested that branch banking would lead to monopoly and absentee ownership and management, whereas local unit banks would have greater knowledge of local affairs, problems, and personalities, and presumably more sympathy with them. Certainly in the past the unit banking system made credit more widely available to small local firms, and particularly to new enterprises, than did the great branch banking systems common in Europe. But this liberality was most evident in the days of free entry into banking, when even relatively small communities had more than one bank.

Defenders of branch banking have replied that it has intensified healthy competition among banks to the benefit of borrowers and depositors. Further, they feel that branch banking is one way a bank can become large and achieve the advantages of superior diversification of assets (and liabilities) against risk. Besides, there can be economies of large-scale operation in banking; the large firm can afford increased specialization in personnel and in equipment.

American banking regulation has been inclined to limit branch banking. In 1959, state-wide branch operations were permitted in twenty-one states. Even in those it is often necessary to receive administrative approval of branches, and expansion may be prohibited into areas where other banks already operate. Most states permitted limited branch banking in the area near the head office, while fifteen states forbade branches.[4] National banks are bound by the rules of the state where they operate.

At the end of 1958, about 2,000 banks had established branches or offices numbering about 8,600. Thus about 85 per cent of the banks still operated only one office.[5] The largest and most flamboyant branch banking operation has been that of the Bank of America in California, with some 600 branches. It is the country's largest banking firm, with assets of $11 billion in 1958.

Bank holding companies function by acquiring a controlling interest in the stock of individual banks. The holding-company device can be used to achieve the effect of an interstate bank in order to improve diversification and achieve economies of large-scale operation. Holding companies can often obtain stockholder capital on more advantageous terms than a unit bank can. At the end of 1957, there were 44 holding-company groups operating, controlling 1,268 banking offices and $15 billion of deposits.[6] Under the Bank Holding Company Act of 1956, most of these groups are supervised and regulated by the Federal Reserve, which can veto additional acquisitions.

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[4] *Wall Street Journal,* Sept. 15, 1959, p. 4.

[5] *Federal Reserve Bulletin,* April, 1959, pp. 442–443.

Both holding companies and branch banking are ways of carrying on bank operations over a larger geographic area than a unit bank can serve. Such widening of geographic coverage may be desirable to achieve greater diversity of loans and deposits, increase geographic mobility of credit, and cope with interregional transactions by customers. Nonaffiliated banks often use correspondent relations among themselves for such purposes. In addition, branch or group systems may be advantageous if they can keep in operation local offices which might not do sufficient business to survive as unit banks. Certainly the existing restraints on the geographic scope of banking are arbitrary and bear no relation to the country's needs for loan or deposit facilities.

Entry into Banking. Starting a new bank appears to be neither easy nor attractive. No bank can begin operations without a Federal or state charter, and charters are not issued automatically. Although restraint is needed to protect the public against crooks or incompetents, it may also provide a convenient opportunity for pressure from existing banks to prevent competition. However, the profitability of banking in recent years has not created any great surge of applications. The number of new banks formed from 1952 through 1958 averaged about eighty per year, but about twice that number went out of existence through mergers. The number of commercial banks declined slowly in the 1940s and 1950s, although branch expansion increased the number of banking offices.

Bank Failures. Prior to the 1930s, bank failures occurred at an alarming rate. This occurred partly because many banks were too small, poorly managed, and inadequately diversified and partly because of the instability of the general economy. During the crisis years 1930 to 1933, more than 8,000 banks failed. This mass failure purged the system of much of its weakness and also led to the adoption of effective policies for safeguarding banks through deposit insurance, increased Federal Reserve powers, and other measures. As a result, the number of bank failures has fallen to a very low level. From 1952 through 1958, only about nine banks per year were liquidated. Even when failure occurs, depositors are now protected against loss.

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[6] *Federal Reserve Bulletin,* October, 1958, p. 1224.

Competition—An Appraisal. It is clear that the current state of competition in banking does not cause injury to banks themselves. If anything, government policies and banking traditions are perhaps unduly antagonistic to competition. The most authoritative study of competition in commercial banking indicates that mergers and branch extensions by existing large banks do not currently constitute a threat to competition and may increase it. It is quite possible that the small local banks are the major anticompetitive elements. More than half the banks in the country face no competition in their own communities, and this lack of competitors gives them definite monopoly power vis-à-vis smaller borrowers who have little access to alternative sources of credit.[7] This monopoly power may also be used as an instrument of political or social pressure.

SAVINGS INSTITUTIONS

Commercial banks are the only private institutions which create checking-deposit money, but they are not the only creators of near-money liquid assets in the form of time or savings deposits. At the end of 1958, $86 billion of these were claims against mutual savings banks, savings and loan associations, and credit unions. These institutions have several significant features:

1. They obtain virtually all their funds from savings in fixed-value interest-bearing forms (but mutual savings banks sell life insurance in some states).
2. They are mostly nonprofit "mutual" institutions, "owned" by their depositors. Often deposits are called "share accounts."
3. Each confines itself to a limited range of assets—credit unions concentrate on personal loans to their members, and the other two types stress residential mortgage loans.

Most mutual savings banks were established many years ago as semi-philanthropic institutions to encourage thrift among low-income groups by providing a safe outlet for their savings. There are only about 500 mutual savings banks, and more than 300 of these are in New York and Massachusetts, with the remainder located chiefly in New England. Most are large—their average assets exceed $70 million each. They may obtain deposit insurance from the FDIC, and about half are so insured, accounting for 80 per cent of total assets.

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[7] David A. Alhadeff, *Monopoly and Competition in Banking,* University of California Press, Berkeley, Calif., 1954. Alhadeff found that large, well-known borrowers could borrow in a highly competitive market little affected by concentration or mergers so far. Medium-sized borrowers commonly faced a regional market which might be adversely affected by mergers. He concluded that for most borrowers there was no close substitute for bank credit and that the higher interest rates charged on smaller loans often exceeded differences in risks or lending costs.

Savings and loan associations originated as cooperative groups through which savers could accumulate funds to purchase homes and borrowers could obtain home-mortgage money. Although their numbers have remained relatively stable around 6,000 in the years since World War II, they have competed aggressively for savings by offering high interest rates, and their assets have increased rapidly. Savings and loan share accounts may be insured up to $10,000 under the Federal Savings and Loan Insurance Corporation. Although only slightly more than half the associations are insured, these hold about 90 per cent of the total assets. The average association is about as large as the average country bank—assets per association averaged about $9 million at the end of 1958.

After the failure of many such associations in the 1930s, the Federal government established a program to promote and protect them and the mortgage market generally. Some associations now hold Federal charters and belong to the Home Loan Bank System, which provides for regulation of their activities but also furnishes them with access to short-term loans from the Federal Home Loan banks. Savings and loan associations have also benefited from Federal programs of lending and mortgage insurance.

Credit unions arose as a means of dealing with the credit problems of low-income families, particularly industrial workers. A credit union is essentially a cooperative organized among a group of people who have some basis for social cohesion—employees of the same business or members of a church, trade union, or fraternal group. The credit union accepts deposits and uses its funds to make personal loans to members at relatively low interest. The number of credit unions is large—over 19,000 in 1959; but their individual scale is very small—assets averaged slightly less than $200,000 each. These data hardly do justice to their importance, however, for their work is chiefly in an area where credit needs may be strong and where individuals' knowledge of alternative sources and access to them may be small.

In the past, the chief problem confronting savings institutions was that of earning a modest income with a minimum of risk. Mutual savings banks and credit unions have enjoyed a high record of safety through most of their history, but savings and loan associations had a bad time of it during the 1930s. The combination of improved supervision, mortgage insurance, deposit insurance, and improvement in the stability of the general economy has reduced the risk problem for these savings institutions as it has for commercial banking. Contemporary concern might better be directed at the concentration of savings institutions on mortgage lending, to the possible detriment of other beneficial forms of investment.

INSURANCE

Nature of Insurance. Most financial intermediaries operate to reduce investment risks through pooling and diversification of assets, and many furnish low-risk financial assets for individuals to hold, in part as protection against financial emergencies. Insurance most of all deals with risks, primarily of two kinds: those relating to human mortality and those relating to property. On one hand, an individual's untimely death may inflict financial hardship on his dependents; on the other, he may outlive his capacity to support himself. Insurable property risks include fire, theft, and accidental damage. Occurrence of these adverse events, although unpredictable for an individual, is highly predictable for a large group. Consequently, a large number of persons subject to a given risk can form a mutual arrangement through which each assumes the burden of a small regular contribution in exchange for the right to be compensated if the insured event befalls him. Insurance enhances economic welfare directly if the gain to the people who collect outweighs the small loss borne by the luckier ones. Property insurance also enhances economic productivity by making individuals and firms more willing to own property and by enabling them to transfer certain risks to a specialized agency and concentrate their own energies on management.

Nonlife Insurance. Property and other miscellaneous types of insurance are sold essentially on a current basis. Premiums are the sum of the mathematical expectation of loss for each policyholder plus his share of operating costs. In addition, insurance firms collect a small additional amount as a contingency reserve to be invested in financial assets. In 1956, individuals and business firms paid over $12 billion for nonlife insurance premiums and received about $7 billion in benefits. Almost all the other $5 billion represented the operating costs of the companies. Nonlife companies had a backlog of about $25 billion in assets to protect themselves against heavy claims. A sum approximately equal to the income from these assets was added to reserves.[8]

Life Insurance—The Level Premium. It would be possible for life insurance companies to operate on a current basis also. They could sell policies running for one, three, or five years for which the premiums would reflect the current probability of death. Life insurance companies operating on this basis would pay out most of their premiums in benefits and operating costs, as the nonlife companies do.

Some policies—term insurance and group insurance—are written in this manner. For a given individual, however, insuring on a current basis would entail annual premiums which would rise over his lifetime as the probability of death increased and would become very large in old age.

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[8] *Federal Reserve Sector and Transaction Accounts,* p. 22. (Mimeographed money-flow data.) Figures are net of reinsurance premiums and benefits.

For this and other reasons, most life insurance sold to individuals is written on a level-premium basis, which creates a different financial pattern. In the simplest case, that of straight life, the insured pays the same annual premium throughout his lifetime. In the insured's early years, the premium exceeds the mathematical expectation of death. The additional sum is held as a reserve and invested. The principal and interest of this reserve make it possible for the premium to remain constant in later years when the mathematical expectation of death rises above it.

Thus the level-premium policy introduces a large element of saving which is not inherent in the insurance principle itself. The policy accumulates a reserve of cash value which belongs to the policyholder in the sense that he can borrow it or even withdraw part of it on canceling the policy. The element of saving is largest in limited-payment or endowment policies, which build cash reserves rapidly.

Types of Coverage. The importance of "pure" insurance versus savings-type is shown in Table 11-3, which indicates the value of various types of policies in force in recent years.

Table 11-3
Life Insurance in Force, December 31, 1957

(Billions of dollars)

	Ordinary	*Industrial*	*Group*	*Credit*	*Total*
Straight life	$ 97	$ 5	*	...	$103
Limited payment	54	27	*	...	81
Endowment and retirement	37	5	*	...	43
Term	54	2	132	20	208
Other	23	1	...	...	24
Total	$265	$ 40	$134	$20	$458
Number of policies, millions	87	108	37	34	266

* Less than $0.5 billion

SOURCE: *Life Insurance Fact Book*, Institute of Life Insurance, 1959, p. 14. Figures may not add up to totals because of rounding.

Over 40 per cent of policy coverage was in term-insurance policies which involved little or no saving. This coverage arose chiefly from group and credit life insurance, both of which have shown rapid recent growth. Group insurance is generally written on an employee group in a given firm. Credit insurance is commonly provided when an individual buys a house, a car, or other item on credit, in order to protect the creditor against default and the debtor's heirs against repossession.

Industrial insurance is the misleading name given to small ordinary life policies sold widely to working-class families. The policies are sold in small amounts (the average policy in 1958 was only $380), and commonly the premiums are collected weekly in very small sums by the agent in person. Although the number of industrial policies was no larger in 1958 than in 1946, such policies still accounted for 40 per cent of all policies by number.

Industrial and ordinary policies differ in mode of payment, size of policy, and certain technical features, but both are available in term or savings policies. Over 80 per cent of coverage was in savings policies. Two-thirds of industrial insurance coverage was in high-saving limited-payment life.

The great extent of savings-type life insurance has created two important problems. First, the life insurance companies receive vast sums in savings which they must invest. Their investment decisions are important for the policyholders and for the economy as a whole. Second, policy variations largely growing out of the savings feature present the purchaser of life insurance with difficult decisions.

Pitfalls in Buying Insurance. Some critics of life insurance have claimed that many policyholders do not get the policies best suited to their needs, end up with too little protection, and pay too much for what they do get. They blame these mistakes in part on insurance agents, since it is well known that insurance is "sold" rather than "bought" and that agents have great influence over policy choices.

Life insurance, according to most advisers, should be used primarily as protection against loss of income through the death of the family breadwinner. Too often, say the critics, families dilute their insurance coverage unnecessarily, particularly by insuring young children, when they would do better to concentrate their coverage on the wage earner.[9]

Family insurance needs change over the life cycle. The need for protection against loss of the breadwinner is greatest when children are young, but this is likely to be a period of financial stringency. Usually term insurance provides the cheapest method of obtaining high temporary protection at that time. But many companies will not sell term policies to individuals, and until recently, few agents would recommend such policies in advising customers. Instead, argue the critics, agents have oversold high-saving policies, which yield them high commissions and give the companies lots of investment funds but involve either high costs or low protection. As a symptom of overselling, they cite the rates of policy discontinuance, which are particularly high for low-income families and industrial insurance policies. Although even the discontinued policy has provided protection while in force, the insured has paid more for it than necessary. Most discontinuance occurs in the earlier years of coverage, when little or none of the premium is returned as cash surrender value.[10]

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[9] At the end of 1958, about 124 million Americans were insured, while only 71 million were in the labor force. Of ordinary policies sold in 1956, 30 per cent by number and 7 per cent by value were on persons under fifteen years of age. Past data on industrial insurance show even higher percentages on nonearners. *Life Insurance Fact Book,* Institute of Life Insurance, 1959, pp. 7, 22; Donald H. Davenport and Gerhard A. Gesell, *Families and Their Life Insurance,* United States Temporary National Economic Committee Monograph 2, Washington, 1940, pp. 22–40.

Finally, the critics feel the agent system is unduly expensive, considering its other shortcomings. Total expenses of life insurance companies are about one-third the size of current benefits paid, and agent commissions account for 45 per cent of expenses.

There is merit in some of these criticisms, but much can be said for the other side. Many of the less desirable features of the agent-commission system have been remedied in recent years. In particular, commission rates have been modified to give more incentive for satisfactory servicing of existing policies and lessen the overemphasis on selling new policies. The companies feel, with ample justification, that the agent system is necessary if people are to be insured. Certainly most people do not have too much insurance—for insured families, average protection is only equal to about two years' income. The average family spends only about 3 per cent of income for premiums, which totaled $11 billion in 1956. While coverage could be increased by greater use of term policies, many buyers value the savings feature of ordinary life policies and are willing to accept the relatively low interest return in order to be forced to save regularly. The companies have shown an increased willingness to sell term policies in various other forms such as mortgage protection. Other desirable innovations have been evident in insurance selling. Companies have greatly broadened their standards of insurability and have reduced the number of categories of people whom they will insure only at premium rates.

In the last analysis, insurance buyers are not likely to obtain optimum protection so long as they are ignorant and gullible. With insurance as with consumer credit, some of the worst problems arise with low-income families. As incomes rise, these problems fade; but some degree

[10] In 1958, 5.7 per cent of ordinary life policies were discontinued, including more than 10 per cent of policies less than two years old. While some 5 million ordinary policies were discontinued, only 600,000 terminated in death of the insured. Among industrial policies, about 17 million were discontinued, while 1 million terminated in death. Estimated from data in *Life Insurance Fact Book,* 1959, pp. 19, 25, 31, 41, 51. See discussion in Gerhard A. Gesell and Ernest J. Howe, *Study of Legal Reserve Life Insurance,* TNEC Monograph 28, 1940, pp. 184–191, and Ralph Hendershot, *The Grim Truth about Life Insurance,* G. P. Putnam's Sons, New York, 1957.

of education and advice for consumers generally remains desirable in all insurance purchases.

Investment Practices of Life Insurance Companies. Through their sales of policies and annuities involving large amounts of saving, life insurance companies have become one of the most important types of financial intermediary. Their assets totaled $108 billion by the end of 1958 and were increasing at a rate of more than $5 billion annually. Table 11-4 summarizes the composition of life insurance company assets at the end of 1958.

Table 11-4

Life Insurance Company Assets, December 31, 1958

(Billions of dollars)

Government securities:	
United States	$ 7
Other	4
Corporate securities:	
Bonds	43
Stocks	4
Mortgages:	
1–4 family houses	23
Other	15
Policy loans	4
Real estate	3
Other assets	5
Total assets	$108

SOURCE: *Federal Reserve Bulletin,* June, 1959.

Nearly 90 per cent of life insurance funds was invested in long-term fixed-value financial claims. Mortgages and corporate bonds together accounted for about 75 per cent of total assets. The insurance companies furnished about 20 per cent of all the mortgage money advanced in 1954–1958 and 40 per cent of all funds going for corporate bonds. At the end of 1958, life insurance companies owned half of all corporate and foreign bonds held in the United States.

The stress in life insurance investments has been on safety of principal and stability of income. Life insurance investment practices are regulated by state authorities, who usually prescribe acceptable types of assets. Some states permit companies to invest limited amounts in stocks and real estate. Such assets totaled over $7 billion in 1958 but were a small fraction of total assets.

The quest for safety has been quite successful. The life insurance industry as a whole weathered the financial crisis of the 1930s far better than did commercial banks or savings and loan institutions. Now the question is whether this emphasis on caution has not been pushed too far for the best interests of policyholders or the economy. Are not life insurance funds unduly concentrated in debt securities, particularly those of large well-established firms, to the possible detriment of new firms or small firms? The sheer magnitude of funds flowing through the large insurance companies drives them to seek large outlets—although some companies make special efforts to seek small-business securities.

Certainly the concentration on debt securities has kept down the rate of return on life insurance company assets, which was below 3.5 per cent annually from 1941 to 1955. Possibly greater willingness to purchase stocks and real estate would benefit the economy generally and also give policyholders higher dividends or reduced premiums.[11]

Competition and Concentration in Life Insurance. Although the sale of life insurance has been marked in the past by a considerable degree of collusion and although a large part of the business has been concentrated in a few firms (as will be seen in subsequent discussion), competition in the sale of policies has been vigorous and probably increasing. Whatever may be said against the agent system, it gives most prospective buyers access to several alternative sellers and has generally led to vigorous sales-promotion activities which, deliberately or not, have spurred competition.

Competition was enhanced when the Supreme Court held in 1944 that the industry was subject to the Federal antitrust laws. Under pressure from the industry, Congress in 1945 adopted the McCarran-Ferguson Act, which permitted the states to exercise the primary regulatory jurisdiction but provided that Federal antitrust laws should continue to apply to insurance "to the extent that such business is not regulated by state law" and to all acts of "boycott, coercion, or intimidation." The law spurred life insurance companies to discontinue many collusive practices, although most still refrain from trying to induce a buyer to switch policies from one company to another.[12]

Competition has also been stimulated by the extensive veterans' life insurance program of the Federal government. About $43 billion of low-premium GI insurance remained in force at the end of 1958.

The business of life insurance is highly concentrated. Although there were in 1958 some 1,300 companies, 60 per cent of the business was in the hands of the ten largest. Metropolitan, Prudential, and Equitable, with combined 1958 assets of nearly $40 billion, were among the largest corporations in the world (measured by assets). At the other end, the smallest four-fifths of the firms by number divided among themselves about 2 per cent of the business.[13] This suggests two problems—the possibility of excessive size at the top and of excessive smallness at the other end of the scale.

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[11] This is the view attributed to the president of Prudential in *Time*, Mar. 18, 1957, p. 98.

[12] Simon N. Whitney, *Antitrust Policies*, The Twentieth Century Fund, Inc., New York, 1958, vol. 2, pp. 346–367, 377–378.

The significance of this concentration lies in the role of the large firms as investors. While their great size permits them to diversify widely and protects their policyholders, it also creates problems. The big firms are faced with the necessity of investing millions of dollars daily and are inclined to favor large-scale loans, particularly by purchasing all or most of a new bond issue from the issuer by "direct placement."

The great size and power of the large companies also raises questions about control. The bulk of life insurance is written by mutual companies, among whom most of the giants are numbered. These companies are technically owned by the policyholders, but the dispersion of policy ownership is so wide and the machinery for control so cumbersome that it is safe to conclude that the management is not subject to any real control except from governmental regulatory authorities. Incumbent management can choose its own successors. No doubt the combination of regulatory supervision and the public spirit of management makes serious abuses unlikely, but the spectacle of so much power with so little responsibility has upset many observers. They note a tendency for management and directors to be lavishly remunerated and for companies to spend large sums on buildings, advertising, public relations, and lobbying. They fear that companies are investment-oriented and reinvest too much of their surplus income rather than distribute it to policyholders. It is interesting that those life insurance companies which are organized as stock corporations for profit are able, despite the competition of the mutual companies, to score profit and dividend records which rank them among the most highly regarded investments for prospective stockholders.[14]

At the other end of the size scale, different problems arise. In many states, entry into the life insurance business is relatively easy, and numerous small companies have been started, particularly in the South and West. The number of life insurance companies in the country doubled between 1950 and 1957. While easy entry undoubtedly contributed to competitive vitality and business opportunity, many of the small companies have been inadequately diversified and regulatory standards have been lax, so that failures have been numerous and some instances of dishonesty have appeared.[15]

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[13] *Ibid.*, pp. 377–378; C. Lowell Harriss, *The American Economy*, 3d ed., Richard D. Irwin, Inc., Homewood, Ill., 1959, p. 116.

[14] Hendershot, *op. cit.*

[15] One-third of the 600 companies formed in 1950–1957 were in Texas. Between 1939 and 1955, 140 Texas companies failed—more than in all other states combined. *Wall Street Journal,* May 2, 1957, p. 22.

PENSION FUNDS

Closely allied to life insurance are the financial operations related to pensions and annuities. Life insurance protects an income-recipient's dependents against the financial consequences of his untimely death; pensions and annuities can protect him and his dependents against the financial consequences of a long life.

Annuities can be purchased on an individual basis from life insurance companies, and under their terms a certain monthly sum will be paid to the insured for the remainder of his life after a specified date. The actuarial basis for annuities is the same as for life insurance. During 1948–1958, the number of individual annuities in force remained roughly constant at about 1.2 million and provided an annual income of about $600 million. In addition, some death benefits under regular life insurance policies are taken by the beneficiaries in annuity form.[16]

Rapid recent growth has occurred in the use of group annuity and pension programs, generally arranged by employers. Some of these are also purchased from life insurance companies; others ("noninsured plans") are managed by banks or other authorities. By the end of 1958, about five million people were covered by insured pension plans and about fourteen million by noninsured. Pensions have been a major objective of union collective-bargaining demands in the 1940s and 1950s.

The noninsured plans have become a large and important financial sector in their own right in recent years, with assets increasing by an average of $2 billion annually in 1952–1958. By the end of 1958 such plans held $22 billion of assets, of which $12 billion were corporate bonds and $6 billion corporate stock. (Assets of insured pension funds are included in the life insurance sector.)

As newcomers to the financial scene, these pension funds have brought their share of growing pains. Some funds have been inadequately safeguarded against corruption and mismanagement or have been hastily established without adequate attention to prospective benefit-cost relations. Many plans involve benefit rights which cannot be transferred with the worker if he leaves his current employment. This has aroused concern lest labor mobility be impaired. However, the adverse effect appears slight; in any case, the trend is toward "vesting" pension rights so they can be transferred.

Another area of concern is with the investment practices of the funds. Is there danger that stock purchases by pension funds may create undue concentration of power and control? There is probably no direct danger, since there are a lot of individual funds, and the banks which manage most of them try to avoid getting involved in management decisions of the firms whose stock they own. Even so, if a large portion of a firm's stock comes to be institutionally owned, this situation may give incumbent management an unnecessary cushion against discontent among individual stockholders or may open the way for a small block of noninstitutional stock to exercise undue control. Most concern is directed toward the future, since pension-fund stock ownership is expected to continue growing rapidly.[17]

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[16] *Life Insurance Fact Book,* 1959, pp. 34, 43.

Government regulation of pension funds is recent and not extensive. In 1958, Congress voted to require that funds submit financial statements to the Department of Labor but provided no detailed directives concerning management. Some states (for example, New York) have also provided for publicity and some protection against improper management.

THE FEDERAL GOVERNMENT AS A FINANCIAL INSTITUTION

Scope. The Federal government participates actively in the world of finance through several functions. First, it exercises a wide range of regulatory power over private financial institutions. Second, it serves as an important lender and, in addition, operates an extensive program of loan and deposit guarantees and insurance. Third, the government issues a number of specialized liabilities against itself which compete for public favor with those issued by private institutions. These include savings bonds, life insurance, and pension plans. Fourth, fiscal policy and the management of the national debt play a major role in influencing saving, investment, interest rates, and other financial conditions.

As a regulator, the government exercises both qualitative and quantitative controls over commercial banks. It regulates federally chartered or insured savings and loan associations and credit unions chiefly in a qualitative manner and supervises very extensively the operations of securities markets and their participants. Outside the sphere of commercial banking, the controls are designed to secure safe, honest, and efficient management. Relatively little attention is paid to the cyclical effects of nonbank institutions or to the general public effects of their asset policies.

Federal Lending Activities. In June, 1958, Federal lending agencies had about $16 billion of loans receivable. These loans had expanded by about $1.5 billion in the preceding five years. Most of these programs were undertaken during the Depression of the 1930s to support distressed debtors and creditors and to promote credit expansion for recovery. Currently the major goals of Federal lending activities are to promote and stimulate specific sectors of the economy, notably agriculture and housing, and to increase the availability of credit to marginal borrowers. Some programs have enlarged the availability of specific kinds of credit (such as loans to cooperatives or to financial institutions). Table 11-5 shows the volume of loans receivable by the major Federal lending agencies.

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[17] An outstanding discussion of facts and problems concerning pension funds is contained in Robert Tilove, *Pension Funds and Economic Freedom,* Fund for the Republic, New York, 1959.

Table 11-5

Loans Outstanding, Major Federal Lending Agencies, June, 1958

(Billions of dollars)

Agency	*Loans*	*Proportion of U.S. funds, per cent*	*Current purpose*
Agriculture:			
Commodity Credit Corporation	$ 1.4	85	Subsidy
Farmers' Home Administration	0.7	100[a]	Marginal borrowing
Rural Electrification Administration	2.8	100[a]	Subsidy
Farm Credit Administration:			
Banks for cooperatives	0.4	46	Kind of credit
Intermediate credit banks	1.2	10	Kind of credit
Housing:			
Federal National Mortgage Association	3.7	45	Kind of credit
Veterans Administration	0.9	100[a]	Marginal borrowing
Home Loan banks	0.9	0	Kind of credit
Business:			
Small Business Administration	0.2	100[a]	Marginal borrowing
Export-Import Bank	3.1	100[a]	Kind of credit
Total[b]	$16.5		

[a] Exclusive of current liabilities

[b] Includes some minor components not shown

SOURCE: *Federal Reserve Bulletin*, June, 1959.

Federally sponsored lenders have promoted almost every type of farm credit. Under the Farm Credit Administration there operate a variety of specialized lenders that have relatively conservative credit standards and that easily pay their own way. These operate as credit cooperatives that are being purchased by their customers. Besides the banks for cooperatives and intermediate credit banks, two other types of lending institutions operate under FCA jurisdiction. These are Federal land banks and production credit associations, with total loans just under $3 billion in 1958. These have become completely privately owned and are not shown in Table 11-5. In these areas, the role of the government has been to sponsor innovation and then withdraw when Federal support becomes unnecessary. By contrast, the Farmers' Home Administration provides credit for farmers unable to obtain it through private channels. The Rural Electrification Administration lends at low interest rates to special power-distribution cooperatives. The Commodity Credit Corporation, while technically a lender, is primarily the agency through which farm prices are supported by Federal purchase.

In the home-finance field, the Federal National Mortgage Association buys insured mortgages in the open market to make more funds available for new loans. The Veterans Administration makes direct housing loans to veterans unable to obtain private credit. The Home Loan banks provide short-term loans to savings and loan associations, much as the Federal Reserve lends to commercial banks.

In the area of business credit, both the Small Business Administration and the Export-Import Bank lend to borrowers unable to obtain private accommodation. In addition, Congress in 1958 authorized SBA to aid financially in the formation of small-business investment companies, conceived as intermediaries to provide equity capital or long-term loans. The Export-Import Bank has served as a vehicle for some development loans to foreign governments.

Many of these agencies may guarantee private loans or undertake joint ventures with banks and other lenders. Some are true financial intermediaries in that they raise funds in the capital market by selling debentures or other claims. The extent of such financing is shown by the share of government capital noted in Table 11-5. These agencies affect private financial institutions in several ways. On one hand, FNMA purchases and Home Loan bank loans ensure the liquidity of mortgage-lending institutions, and many banks benefit from loan guarantees and joint participation. On the other hand, the direct-lending agencies provide competition for private lenders which they do not always welcome. In particular, controversy and criticism have sprung up around the agencies designed to lend to marginal borrowers.

Loan Guarantee. In the 1930s it was discovered that frequently government guarantee or insurance of loans was as effective as government lending in achieving desired results. Peacetime use of loan guarantee has occurred chiefly in home-mortgage credit, under the auspices of the Federal Housing Administration and the Veterans Administration. To be eligible for FHA insurance, the property must be appraised by FHA examiners, and the mortgage must meet standards of minimum down payment and maximum interest rates. A fee for the insurance is added to the interest charged the borrower. The VA will guarantee or insure mortgages for veterans if they meet standards of appraisal, down payment, and interest rates. Maximum interest rates have usually been below those set by the FHA, and since 1955 the VA has been willing to insure mortgages involving no down payment. No fees are charged for

Table 11-6

Federal Mortgage Insurance and Guarantee, June, 1958

(Billions of dollars)

FHA insurance:	
a. 1–4 family houses	$18
b. Other houses	5
c. Repair and modernization	1
Total FHA	$24
VA insurance and guarantee:	
d. Value of mortgages covered	31
e. Amount of VA liability	17
Total mortgages, 1–4 family houses	112
Total insured and guaranteed ($a + d$)	48
Government's liability ($a + e$)	34

Note: VA guarantees may not exceed 60 per cent of the loan value; VA insurance covers 15 per cent of the value of all insured loans held by one lender. Details may not add up to totals shown because of rounding.

SOURCE: *Federal Reserve Bulletin*, June, 1959; *Annual Report,* Veterans Administration, 1958; *Budget of the United States*, January, 1959.

VA insurance; thus the program operates at a loss. Table 11-6 indicates the scale of Federal mortgage insurance as of June, 1958.

About 43 per cent of outstanding 1-to-4-family home mortgages were government-underwritten fully or in part. However, VA or FHA protection covered only about one-third of such loans extended in 1957–1958, because interest-rate ceilings made insured loans less attractive to lenders.

Deposit Insurance. The Federal Deposit Insurance Corporation insures commercial bank and mutual savings bank deposits up to $10,000, while savings and loan share accounts are similarly protected by the Federal Savings and Loan Insurance Corporation. Their insurance coverage is indicated in Table 11-7.

Insurance coverage by number of institutions is very impressive, for about 95 per cent of all deposits and shares are in insured institutions. Insurance coverage of savings deposits and shares by dollar volume is also impressive, running above 90 per cent. Coverage of demand deposits is relatively low, because of their concentration in large accounts, but the number of accounts not fully insured is small.

In twenty-five years of operation (1934–1958), FDIC came to the aid of 436 banks with deposits of $593 million, of which depositors received $590 million. Only 42 of these cases occurred in the last fifteen years.[18] The small insurance premium has more than covered net losses and expenses. FDIC operates to minimize bank risk through

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[18] *Annual Report,* FDIC, 1959, pp. 4–5, 27.

Table 11-7
Federal Deposit Insurance, December 31, 1958
(Billions of dollars)

Type of deposit	Institutions insured		Deposits in insured institutions		Deposits actually insured	
	Number	Per cent	Value	Per cent	Value	Percentage of all
Commercial Banks	13,124	97				
Demand	......	...	$149	99	$ 57	38
Time	......	...	65	99	55	83
Mutual savings	241	46	27	80	26	76
Total FDIC	13,365	95	$242	97	$138	57
Savings and loan	3,881	63	45	93	43	90

SOURCES: *Annual Report,* FDIC, 1959, pp. 4, 142; *Annual Report,* Home Loan Bank Board, 1959, pp. 33–34; *Savings and Loan Fact Book,* U.S. Savings and Loan League, 1959; details of FDIC coverage by type of deposit estimated by author from data in *Federal Reserve Bulletin,* April, 1959, p. 380, and Raymond Goldsmith, *Financial Intermediaries in the American Economy since 1900,* National Bureau of Economic Research, Inc., Princeton University Press, Princeton, N.J., 1958, p. 163.

its program of bank examination. When a bank is in trouble, FDIC tries to save all its deposits by reorganization or merger; therefore actual liquidation has usually been avoided, and all depositors are protected.

Government Lending and Guarantee—Appraisal. A few of the foregoing programs, such as deposit insurance and the Farm Credit Administration, have received almost unequivocal commendation, but most of the others have been controversial. Accusations have been made of graft and waste, unfair subsidies, and failure to achieve objectives.

The classic case of abuse is the Reconstruction Finance Corporation, originally established in 1932 as an antidepression measure. After a respectable career in the 1930s, the RFC was authorized in 1948 to lend to private business borrowers unable to obtain private credit. Some of its loans were of dubious social value, and in some cases it was milked for private profit by creditors or owners of firms receiving loans. After a congressional investigation brought these delinquencies to light, the RFC was liquidated in 1953. The FHA also sustained a period of exploitation when some unscrupulous builders found ways to cash in on overly generous property appraisals.[19]

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[19] See Blair Bolles, *How to Get Rich in Washington,* W. W. Norton & Company, Inc., New York, 1952; Jules Abels, *The Truman Scandals,* Henry Regnery Company, Chicago, 1956. Among RFC borrowers were included a snake farm, a luxury hotel, and a gambling casino.

Such extremes of incompetence or corruption have been eliminated, but there remains the danger that loans to firms with small ownership equities may tempt owner-managers into improper actions, such as running down the firm's assets through excessive salaries or improper payments. Case studies of SBA loans suggest that this problem is not imaginary.[20] Other problems arise where interest charges or insurance premiums on government loans or guarantees do not cover losses and management costs. Access to such low-cost credit may give some business firms unfair competitive advantages over others, and the taxpayers may be subsidizing groups who neither need nor deserve it.

As for the accomplishment of objectives, there has been considerable doubt cast on the extent to which the government's extensive program of housing credit has benefited home buyers. The most authoritative study concluded that the program operated chiefly to raise construction costs and home purchase prices in the postwar period and made only a small contribution to the low mortgage interest rates in effect (which were low chiefly because of general easy credit conditions).[21] It is evident that the chief political pressure groups behind the home-credit program have been builders, real estate dealers, and lenders, and they have probably been the chief beneficiaries.

Nevertheless, several constructive accomplishments can be credited to the Federal programs. They have helped promote beneficial innovations in types of loans (term loans to business) and types of borrowers (cooperatives, savings institutions). Some lending activities have stimulated competition where it was needed, in lending to new and small firms and to farmers, and in the process the availability of credit from private as well as public sources may have been increased. The Federal lending and guarantee programs have helped to increase the safety and liquidity of private financial institutions. Finally, these Federal activities have contributed to some degree to economic stabilization, although the achievement has been far short of the potential.

It appears likely that an extensive lending and guarantee program will remain in effect. If it does, some safeguards for the public interest certainly are needed, particularly to minimize opportunities for exploitation by the promoter or sharp operator. The second Hoover Commission recommended that SBA loans be subjected to bank examination standards and that all lending agencies should charge interest rates or insurance premiums which adequately cover their costs and provide for risks of loss. Under some such safeguards, continued lending to marginal borrowers may well be in the public interest. Such lending, if done at compensatory interest rates, might help promote further desirable innovation in the willingness of banks and other lenders to lend more freely to risky borrowers.

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[20] See *Task Force Report on Lending, Guaranteeing, and Insurance Activities,* (Hoover) Commission on Organization of the Executive Branch of the Government, Washington, 1954.

[21] Saulnier, Halcrow, and Jacoby, *op. cit.,* pp. 144–147.

The National Debt as a Financial Institution. The Federal debt is so large and possesses so many unique characteristics that it deserves special attention. At the end of 1958, the gross Federal debt had reached a total of $283 billion, a level approximately the same as at the end of World War II. Table 11-8 shows some important aspects of the composition of the debt.

Table 11-8
The Federal Debt, December 31, 1958

(Billions of dollars)

Marketable securities:	
Maturing in less than 1 year	$ 73
Maturing in 1–5 years	52
Maturing in 5–10 years	19
Maturing in 10 years and up	32
Total	$176
Savings bonds	51
Special issues	45
Other	11
Total debt	$283

SOURCE: *Federal Reserve Bulletin,* June, 1959.

About 60 per cent of the debt was in marketable form—securities that could be bought and sold at market prices which might diverge from par. Savings bonds are not marketable but are payable on demand at a fixed value. Special issues are held within government agencies and trust funds. Something of the economic significance of the debt can be explained by looking at who held it, as shown by Table 11-9.

Table 11-9
Ownership of the Federal Debt, December 31, 1958

(Billions of dollars)

Government agencies and trust funds	$ 54
Federal Reserve banks	26
Commercial banks	67
Other financial institutions	26
Nonfinancial corporations	17
State and local governments	17
Individuals	65
Nonprofit, foreign, etc	10
Total	$283

SOURCE: *Federal Reserve Bulletin,* June, 1959. Details may not add up to total because of rounding.

Holdings of government agencies and trust funds are little more than bookkeeping arrangements reflecting contingent government liabilities of other types—chiefly those under pension and insurance programs. Interest paid to such funds represents a government subsidy to their costs.

Federal Reserve holdings are also in a sense "all in the family." Interest paid on such holdings finances costs of administering the Federal Reserve System, and the securities themselves are a stand-by instrument of monetary policy, through which open-market operations can function.

Commercial bank holdings serve banks as secondary reserves which yield some income but also provide a source of ready liquidity. The interest may be regarded as a subsidy for the banks' services in managing the money supply. Member banks in 1957 received about $1.2 billion interest on United States securities, which was about three-fourths of net deposit management costs.

Other financial institutions and nonfinancial corporations hold government securities as interest-bearing near-money to provide liquidity—also a sort of secondary reserve function. For individuals, state and local governments, and other investors, government securities are investment assets rendered desirable also by their safety and liquidity.

Clearly the public debt is involved in a multiplicity of objectives. It is a device for financing government trust funds, an instrument of monetary policy, and a reserve of interest-bearing liquidity which is held by every sector of the economy, to a degree matched only by cash itself. In this respect, the public debt functions to enhance the mobility of loanable funds through the economy. The creation and maintenance of such a public debt may be a useful government function, much as is the creation and maintenance of a currency system.[22]

THE WORLD OF FINANCE—SOME GENERAL OBSERVATIONS

The Pattern of Intermediation. We have discussed the asset acquisitions of various types of intermediaries. Now Table 11-10 shows the total pattern of institutional ownership of financial assets for December, 1957.

This table summarizes the distribution of most of the principal types of financial assets. Financial institutions held about 40 per cent of

[22] The analogy is close historically, for in the post-Civil War period government currency was treated as a part of the national debt and was looked upon with much the same disapproval which greets the national debt today. Professor J. M. Culbertson has suggested that the national debt makes its major financial contribution as a liquid asset rather than an investment security, and he concludes that more of the debt should be issued in short-term form. "A Positive Debt Management Program," *Review of Economics and Statistics*, May, 1959, pp. 96–97.

Table 11-10

Financial Assets of Financial Institutions, December, 1957

(Billions of dollars)

Institution	*United States securities*	*State and local securities*	*Corporate and foreign bonds*	*Mort-gages*	*Con-sumer credit*	*Other loans*	*Corporate stock*	*Cash and deposits*	*Total*
Federal Reserve banks	$ 24	...	...	...	...	...	...	*	$ 24
Commercial banks	61	$14	$ 1	$ 23	$16	$57	...	$ 35[a]	207
Mutual savings	8	1	3	21	...	...	$ 1	1	35
Savings and loan associations, credit unions	4	...	...	40	3	1	...	3	51
Life insurance companies	7	2	42	35	...	4	3	1	95
Pension funds	2	...	11	*	...	1	6	*	20
Other insurance companies	7	6	2	1	...	...	7	2	24
Other financial institutions	3	*	1	1[b]	14[c]	8[d]	8[e]	4	38
Total	$115	$23	$60	$122	$33	$71	$ 24	$ 46	$ 494
Nonfinancial holders	110	32	14	34	12	26	263	271	762
Total	$225	$55	$74	$156	$45	$97	$287	$317	$1,256
Percentage financial	51	42	81	78	73	73	8	15	39

Percentage of assets other than stock, cash and deposits.......... 65

* Less than $0.5 billion

[a] Includes interbank deposits and reserves with Federal Reserve

[b] Chiefly held by mortgage companies

[c] Chiefly held by finance companies

[d] Includes security loans by brokers

[e] Chiefly held by investment companies

SOURCE: Federal Reserve mimeographed money-flow data. Figures are rounded and may not add up to totals. Stock excludes holdings of nonfinancial corporations, holding companies, and closed-end trusts. Federal debt excludes intragovernment holdings.

these financial assets, but their holdings of cash and deposits and of corporate stock were relatively small proportions of the totals. Of other debt claims (excluding trade credit), however, they held 65 per cent, including about 80 per cent of corporate bonds and mortgages. Thus we find a pattern in which the nonfinancial sectors of the economy hold large proportions of the ownership claims against business and the debt claims against financial institutions but only a small proportion of the debt claims against nonfinancial sectors.

Vertically, the table emphasizes the importance for financial institutions of the Federal debt and mortgages. These are the two largest categories of assets and account for nearly half the total institutional assets. Both are widely distributed among all major private institutional categories.

Horizontally, the table reasserts the quantitative importance of commercial banks and life insurance companies as financial institutions. These two are by far the largest institutional categories and account for more than half of total assets. They are also the most widely diversified. Between them they figure in every asset category, although neither accounts for much in stock ownership.

In our discussion of individual institutions, we have noted numerous problem areas and possible shortcomings. Such an emphasis should not cause us to overlook the great constructive accomplishments of our financial system. Since World War II, these institutions have achieved a notable record in safety, honesty, and efficiency. The financial sector has adjusted to innovations in all forms of lending and has among other things produced facilities for consumer credit and home-mortgage lending superior to those of most other industrial countries.

But a large part of the saving-investment flow is now being channeled through financial intermediaries, many of which do not give sufficient attention to the public effects of their investment practices. Critics have singled out the following particular problems:

1. *Too much debt?* The funds of financial intermediaries flow almost exclusively into debt claims, and some critics fear that this will encourage overindebtedness. Firms heavily in debt are vulnerable to depressions, for mild declines in income and asset values may render them insolvent and throw them into bankruptcy. However, the real problem is depression itself. If the economy continues to avoid serious depressions as it has in the 1940s and 1950s, few firms will find their debt burdens excessive. Most lenders see to it that a borrower's debt does not get out of line with the ownership capital of the firm.

Still, would it not be better if more funds went into equity investment? Certainly the use of stock issues for capital is not very great; but of course a much larger volume of ownership capital is obtained through reinvestment of profits. Evidence in the 1950s indicates no shortage of equity capital for the large corporations. Indeed, the tendency for stock prices to rise faster than profits or dividends has led some observers to speak of a shortage of stocks. If there is a problem, it is for the firms with no public market for their securities.

2. *Too much safety?* Our discussion indicates that the largest financial intermediaries, banks and life insurance companies, are dominated in their investments by safety considerations, to the extent that they may fail to make loans which with high enough interest rates might be profitable and economically beneficial. Many of these would be to small firms.

3. *Inadequate funds for small firms?* This may well be the crucial issue; it is certainly the hottest one politically. It is important for many reasons that small firms have adequate access to capital—to ensure opportunities, to promote the possibility of innovation, to enhance competition. There is also no doubt that in obtaining external funds small firms face some disadvantages in the form of higher interest rates and quantitative limitations on availability. How serious these defects are is hard to say. Most small firms are in retailing and services, where they face no great credit problems. The more serious situation is likely to involve small firms in manufacturing. Their credit difficulties may be very real, and the social benefit to be gained by encouraging their growth quite substantial.[23] One recent study concluded that credit difficulties of small firms could generally be traced to their lower credit standing judged in terms of financial ratios measuring liquidity and equity.[24] However, these ratios may be biased against the small, growing firm. Evidence of an unfilled need is furnished by recent disclosure of a flourishing racket in which the crook collects an advance fee from businessmen on the promise of obtaining credit for them.[25] A major difficulty seems to be that those small-business entrepreneurs who can best use more capital are reluctant to share control of their firms sufficiently to get it.

For the new firm, similar difficulties may be encountered. An added problem is the tendency, during periods of credit restraint, for lenders to take care of established customers first.

Such credit problems have spurred the government to establish credit programs to aid marginal borrowers in business and agriculture. An interesting innovation is the offer of assistance to small-business investment firms begun in 1958 by the Small Business Administration. Some measures designed to aid small business get capital are probably desirable, although government intervention does have its pitfalls.

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[23] Paul Donham and Clifford L. Fitzgerald, Jr., "More Reason in Small Business Financing," *Harvard Business Review,* July–August, 1959, especially p. 96.

[24] Thomas R. Atkinson and Geoffrey H. Moore, "Risks and Returns in Small Business Financing," in *The Study of Economic Growth,* annual report of the National Bureau of Economic Research, Inc., New York, 1959, p. 63.

[25] *Changing Times,* July, 1959, p. 42.

4. *Undue concentration of power?* There is no doubt that the major commercial banks and life insurance companies wield tremendous power. Furthermore, many financial firms are mutual companies in which the "owners" have little control. Much criticism has been directed at the (alleged) unrestrained power of the management of large financial institutions, but it is hard to find evidence of present abuses. For one thing, financial firms are regulated by government to an extent matched by few other industries. Furthermore, these firms are still struggling (and often bending over backwards) to overcome hostilities based on real or imaginary misdeeds of the past. Second, even the big financial firms compete with each other, often more vigorously than the major firms of a manufacturing oligopoly. In any event, no financial arrangements would eliminate the concentration of power in manufacturing itself, where the scale of enterprise frequently makes it inevitable that management will enjoy autonomy. It is interesting that some critics are alarmed at the prospect that major financial intermediaries will use the power which their investments give them over industry, while others berate them for failure to take a more active and constructive role in the companies whose securities they hold.

SUMMARY

Leading financial intermediaries promote economic welfare not only by facilitating capital formation but also by furnishing the public with useful financial assets such as checking deposits, savings deposits and shares, and insurance and pension rights. In the first two categories, institutional performance is close to optimum (aided by government insurance programs). Some elements in insurance and pension programs still merit criticism, however.

The character of the assets which these intermediaries acquire reflects the nature of their own liabilities to the public. Thus we find that banks, savings institutions, and insurance companies stress the acquisition of debt rather than equity investments and try to limit themselves to individual assets having low risk rather than acquire a balanced portfolio in which higher returns balance the higher rates of loss on individual items. Although the concentration on debt assets is probably not disadvantageous to the over-all economy, the low-risk emphasis may create a credit problem for small and new businesses.

Commercial banks show the greatest breadth and flexibility in their asset acquisitions and do the best job of accommodating new and small firms. Savings institutions specialize in mortgage lending, while insurance companies acquire chiefly mortgages and bonds. Government programs of lending, insurance, and guarantee have aided private institutions and also provided a spur of competition.

QUESTIONS FOR STUDY

1. An insurance company recently announced that it was prepared to sell insurance against breaking one's spectacles. Why is this not a very good application of the principles of insurance?
2. How do you account for the fact that the number of commercial banks has been declining during the rapid growth in the economy in the 1950s?
3. "We have noted in this and the previous chapter that a large portion of individuals' saving goes through financial intermediaries. Since the latter have a considerable amount of expenses to meet, it stands to reason that the economy would be better off if the financial middlemen were eliminated, and savers furnished funds directly to borrowers. Savers would then get higher returns and borrowers have to pay less in costs." Criticize this line of reasoning.
4. According to a life insurance mortality table adopted in 1958, out of a normal group of 100,000 people of age twenty, about 179 would die within a year and about 930 within five years. What would be the approximate annual premium per $1,000 to buy "pure insurance" on a one-year or five-year term basis at that age? To buy an ordinary life policy at age twenty would cost you $15 to $20 per $1,000 per year. Why?
5. The kinds of assets which commercial banks and life insurance companies may acquire are determined in large degree by the nature of their liabilities to the public. Describe and evaluate the relationship.

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PART FIVE

INTERNATIONAL FINANCIAL RELATIONS

CHAPTER 12

INTERNATIONAL ASPECTS OF MONEY AND FINANCE: THEORY

So far our analysis has been directed primarily to monetary relationships within one country. In this chapter we shall concentrate on the interplay between international finance and domestic income levels, interest rates, monetary and fiscal policies, and economic welfare.

WHY TREAT INTERNATIONAL FINANCE SEPARATELY?

International Specialization. International transactions do not differ much economically from those which occur within one national economy. Goods and services are exchanged internationally in reflection of the potential benefits of specialization on productivity. Some of these benefits arise from the unequal distribution of natural resources about the earth. Beneficial specialization may also arise from differences among countries in the *relative* supply of various resources. Thus a country with an abundance of capital in relation to labor and land is likely to specialize in products in which capital-intensive methods are efficient (petroleum refining, steel). Countries with much land relative to labor and capital may find it more advantageous to specialize in the products of extensive agriculture (wheat, cattle). Each country can obtain a greater amount of the things it wants by concentrating its resources in those products for which they are relatively well suited and trading some of these products for the things its people desire. International trade, like all trade, takes place because the parties to the exchange find it mutually advantageous. Compared to self-sufficiency, specialization and exchange among nations will usually result in a higher value and volume of world output, since it encourages the use of resources where their productivity is high.

Besides the important commerce in goods and services, there are important international transactions involving the movement of securities, claims, and other intangibles—so-called capital transactions. A large part of this movement consists of media of exchange moving opposite to the flow of goods and services, but part of it represents a flow of financial saving from some countries into financial investment in others. Ideally, the international flow of capital funds should be in accordance with desirable patterns of productivity and resource use. If capital funds flow from areas where the marginal efficiency of investment is low to areas where it is high, investors benefit from higher incomes, while the recipient country can enjoy the benefits which investment can confer on employment and productivity.

Significance of National Boundaries. International economic relations differ from intranational activities in several respects. Productive resources do not move as easily across national boundaries as they do inside them. International transactions are complicated by the fact that each nation may have its own monetary units. Thus traders may find it necessary not only to exchange goods and services for money but also to exchange one type of money for another. Problems arise when national monetary units fluctuate in relative value and when deliberate government restrictions on monetary exchanges replace free convertibility.

Politically the "nation" is a basic policy-making unit, and its policies will generally give more attention to the welfare of residents than to outsiders. There has generally been a bias in favor of self-sufficiency and an attitude that international transactions are suspect and inferior. While international transactions are usually mutually beneficial to the trading countries, they are often *not* beneficial to all parties within those countries. Freedom to import may reduce income and employment in some import-competing industries, even though incomes and employment expand in export industries and consumers benefit from lower prices. Military or strategic considerations may dictate interference with free transactions, and in some circumstances freedom of international transactions may be incompatible with domestic economic welfare. National policies to prevent depression and maintain full employment have led to extensive restrictions on international transactions, sometimes with ample justification.

TYPES OF INTERNATIONAL TRANSACTIONS AND PAYMENTS

The Balance of International Payments. The central concept for the analysis of the financial or money-flow aspects of international transactions is the balance of international payments. This is simply an orderly listing of all types of international transactions which a country engages in during a given year. Table 12-1 shows the balance-of-payments statement for the United States for 1958.

All credit items represent actual or potential sources of foreign exchange to the United States. Americans can obtain foreign money in exchange for goods and services exported, through income on foreign investments, by selling securities, claims, or gold, or by receiving transfers or gifts. All debit items represent actual or potential uses of foreign exchange by the United States. The transfer item includes private gifts and government grants for foreign aid. Note that this item is netted and appears on only one side.

Table 12-1
United States Balance of International Payments, 1958

(Dollar totals in billions)

Credits		*Debits*	
Current account			
1. Exports of goods	$16.2	1. Imports of goods	$12.9
2. Exports of services	3.8	2. Imports of services	3.9
3. Income received on investments	2.9	3. Income paid on investments	0.7
4. Military export sales	0.3	4. Military imports	3.4
5. Current account total	$23.2	5. Current account total	$21.0
Capital and miscellaneous account			
6. Exports of securities and claims (capital inflow):		6. Imports of securities and claims (capital outflow):	
a. New long-term	$ 0.1	*a.* New long-term	$ 3.9
b. New short-term	1.1	*b.* New short-term	0.6
c. Repayments to U.S. (net)	0.7	*c.* Repayments by U.S. (net)	0.0
d. Total	$ 1.9	*d.* Total	$ 4.5
7. Transfers received (net)	0.0	7. Transfers paid (net)	2.3
8. Exports of gold (net)	2.3	8. Imports of gold (net)	0.0
9. Errors and omissions (net)	0.4		
10. Total credits	$27.8	9. Total debits	$27.8

Note: Details may not add up to totals because of rounding. Exports exclude goods shipped under military-aid grants.

SOURCE: *Survey of Current Business,* June, 1959.

The current-account items in the balance-of-payments statement are direct parts of the main money circuits of the trading countries. For any country, exports represent a use of current production, and receipts for their sale (or from investments) are a part of current income. Likewise, imports represent a use of current income.

The Capital Account. The capital account in the balance-of-payments statement consists of financial items relating to foreign investment and payments. On the credit side is shown the amount received by Americans from foreigners through investment transactions—foreign purchases of American securities or other claims against Americans (including bank deposits) and repayment of debts due to Americans. On the debit side appears the flow of capital funds out of the United States through similar transactions. In 1958 net capital exports (including government loans) were about $2.5 billion.

The capital account covers transactions which may fall into two quite different classifications. At one extreme are transactions representing long-term investment. In the past these were chiefly bond purchases, but currently they consist heavily of government loans, stock purchases, or direct investment by domestic firms in foreign branches or subsidiaries. Such transactions will be largely independent of the condition of the balance of payments as a whole.

At the other extreme are the transfers of short-term claims used to make international payments of all kinds. These include money itself (transferred by draft, money order, traveler's check, or cable transfer) or short-term credit instruments arising from international transactions. This international flow is a counterpart of the domestic flow of expenditures; it moves opposite to the international flow of goods and services and approximately matches it in size.

An additional movement of financial claims results from settlements of international clearing balances by financial institutions. International transfers of gold, government securities, or other foreign-exchange assets among banks and other financial institutions are analogous to the domestic settlement of bank clearings by transfers of reserves. Thus short-term capital movements consist of a large gross flow of media of payment which has little relation to investment in the usual sense. By 1957, the gross volume of world trade had reached approximately $100 billion. If capital movements are included in the total, there must have been a gross volume of financial transactions of at least this magnitude.

In 1958, foreign holdings of American bank deposits and other short-term claims increased $0.5 billion more than American holdings of similar claims against foreigners. This net short-term capital flow was largely induced by the behavior of the rest of the balance of payments. Since American payments for goods and gifts and loans exceeded receipts from similar items, there was a net shift of cash and near-money from American to foreign ownership.

Statistical Balance. The balance-of-payments statement always balances statistically because of the definition of terms. Every imaginable transaction gives rise to an equal entry on both sides. This can be illustrated by a few sample transactions, as follows:

1. An American importer buys $5,000 of British goods, and the seller accepts a check on an American bank in payment. If we use the items

from Table 12-1, this would be entered on the American balance of payments in this way:

6. Export of (short-term) claims	$5,000	*1.* Import of goods	$5,000

2. Britons send $5,000 of goods to the United States as gifts:

7. Transfers received	$5,000	*1.* Imports of goods	$5,000

3. Britons send us $5,000 worth of British currency as gifts:

7. Transfers received	$5,000	*6.* Import of (short-term) claims.	$5,000

4. An American importer borrows $5,000 in England in order to purchase imports. This transaction would give the same result as our first example, with the importer's IOU being the claim exported from the United States.

Thus in theory the account must always balance. In practice, the statisticians never have full information on all transactions; therefore errors and omissions must be allowed for.

Structure of United States Payments. In 1958, as Table 12-1 indicates, the United States exported more than it imported. This has been the case consistently since World War II. The surplus on current account was about $2 billion, although it would be much larger if military purchases were excluded from imports. Commercial exports exceeded commercial imports by over $3 billion, and a net income of $2 billion more came from investments. Transactions in services (tourism, insurance, shipping) were roughly balanced.

A net export surplus on current account must be balanced by items in the capital and miscellaneous account. Here we find that the United States made net loans and investments abroad totaling about $2.6 billion and furnished an additional $2.3 billion in government and private gifts. These items not only furnished foreign countries with enough to pay for the surplus exports they bought but enabled them to purchase $2.3 billion in gold from the United States as well.

THE INTERNATIONAL ROLE OF MONEY

The Price System. Internationally, the functions of money are essentially those it serves within each national economy. Money prices serve internationally as a guide to specialization and exchange. They help to determine what products will be produced and what resources and techniques will be used in making them. Prices play a major role in determining which commodities a nation will produce for export and where they will go and what things it will import and from what sources. In so doing, the international price system exerts a strong influence on the domestic production, resource, and income patterns of individual countries.

The international influence of prices is complicated by the fact that individual consumers and business firms make their decisions chiefly in terms of their own monetary unit. But each monetary unit is linked to others through foreign-exchange rates, which become an additional variable in international price comparisons. Thus an American exporter must estimate the price in foreign currency at which he can sell his products and multiply this by the exchange rate to obtain an estimate of dollar revenues.

At any given set of exchange rates, buying and selling decisions of consumers and business firms will take account of foreign as well as domestic alternatives. Buyers will choose imports rather than domestic products when the imports yield more utility or productivity per dollar. Sellers will supply export markets when they yield more revenue than domestic markets.

This interplay of decisions will tend toward a definite pattern. In each country, the prices of individual resources will tend to reflect their relative scarcity or abundance. If land is abundant relative to labor and capital, for instance, land prices and rents will be low relative to interest rates and wages. Where land is cheap, extensive agricultural production can be carried on at low cost. Products such as grain and meat can then be produced cheaply enough to keep out imports and to be sold successfully in export markets. At the same time, the scarcity of labor and capital will give those resources higher prices and cause domestic products using chiefly those resources to be more expensive than imports. Thus the country will tend to import those items which are not so well suited to its peculiar pattern of resource availability. Each country tends to specialize in products for which it has a *comparative advantage*—for which its resources are relatively well suited.

A change in rates of foreign exchange will alter the prices on which import and export decisions are based. If foreign currencies become more costly in dollars, imports into the United States will become correspondingly more costly—assuming their prices remain unchanged in the country of origin. The same shift will raise the prospective sale value in dollars of American exports. However, if foreign currencies fall in value relative to the dollar, imports will become cheaper in dollars, and the prospective sales proceeds of American exports in dollars will fall. Thus the volume of imports and exports may be dependent on foreign-exchange rates.

International Medium of Exchange. Money also serves its function as medium of payment and exchange internationally. Since goods and services can be sold for money, which can in turn be spent for other goods and services, exchanges of a multilateral nature can easily be conducted. Further, the use of money permits these exchanges to be spread out over time.

Freedom for multilateral exchanges is of vital importance among nations. If country A can sell exports to B, C, and D and use the proceeds to buy from E, F, and G, it is free to specialize along the lines of comparative advantage and be relatively indifferent to the specific destination of exports or the origin of imports. In recent years, European countries have relied on export surpluses to South America and other less industrialized countries to finance import surpluses from the United States.

Without such freedom, trading tends to degenerate into bilateral exchange. National specialization is restricted by the problem of "double coincidence of wants"—each country must consider what the trading partner wants and what it has to offer in exchange. Tendencies toward bilateralism may arise from exchange controls which restrict the use of regional payments surpluses to meet needs in other areas.

Media of International Payment. The international functioning of money as a medium of payment is complicated by the fact that individual national monetary units are not generally acceptable in payments in other countries. Generally, prospective import buyers start out with a supply of their domestic money, whereas prospective sellers ultimately want to receive payment in *their* type of money. In practice, one or the other will take the initiative in making an exchange of money units. The prospective importer may "buy" some of the money of the exporter's country and pay him with it; or the exporter may accept payment in the importer's national money and "sell" it to obtain the desired units in exchange. For most traders, the normal foreign-exchange transaction is simply the exchange of one type of bank deposit for another. These exchanges are made through banks and other foreign-exchange institutions, who settle balances among themselves chiefly with near-money foreign-exchange assets such as gold or short-term credit instruments.

In the nineteenth century, the pound sterling was the primary medium of international payment. Foreigners held large deposits with British banks, which they used to make payments not only to British exporters or investors but also to residents of other countries. Sterling is still the most widely used international medium and is used in settling nearly half of the free world's trade. However, the American dollar has become an important medium in recent years. American importers and tourists can spend dollars almost anywhere. Foreign sellers are willing to accept them and take the responsibility of converting them into their own currency units. A substantial volume of checking deposits in

American banks is held by foreigners—over $7 billion at the end of 1958. Foreign holdings of sterling deposits have been about equal to foreign holdings of dollar deposits in the 1950s.[1]

Store of Value. Types of money which are widely used internationally are likely to be held to some extent as a store of value in order to meet expected or unexpected future international payment needs. Individuals may hold the money of a foreign country as a store of value because they regard their own money as inferior. Holding of domestic balances may be encumbered with exchange restrictions, or the holder may risk taxation or confiscation. Or individuals may hold foreign money as a speculation, because they expect the foreign-exchange value of their domestic money to decline. Attempts to acquire foreign money for these purposes are often called "capital flight."

However, money as an international store of value competes with other types of assets. Unless there is some pressing desire for liquidity (as in transactions balances), foreigners often prefer to hold interest-bearing short-term debt claims, such as time deposits and government securities. Foreign holdings of dollar assets of this type amounted to $9 billion at the end of 1958.[2]

In recent years, most foreign holdings of American money or near-money have represented foreign-exchange reserves for central banks and other financial institutions. These reserves provide a medium through which net settlements of international positions can be made among these institutions. Of the $16 billion foreign holdings of dollar demand deposits and near-money assets in December, 1958, more than $13 billion was held by banks or other financial institutions.[3]

This function of international foreign-exchange reserves is shared by gold. By the end of 1958, the monetary gold stock of the free world totaled about $40 billion, of which about half was owned by the United States. Other leading countries were Britain, with slightly over $3 billion, and West Germany, with slightly less than $3 billion. It is well known that the Soviet Union has large gold reserves, but their quantity is unknown. Much of the free world's gold is kept physically in the United States. "Earmarked" gold, belonging to foreign countries but in the possession of the Federal Reserve banks, exceeded $9 billion at the end of June, 1959.[4]

Money as the Unit of Debt. International trade and investment give rise to a large volume of indebtedness expressed in money units of individual countries. Like all debts, the real values of these obligations may be affected by changing prices of goods and services. Variations in foreign-exchange rates can also alter the international values of assets and liabilities. For example, when the British devalued the pound from $4.03 to $2.80 in 1949, an American who owed £1,000 to a Briton would find the dollar cost of discharging the debt reduced from $4,030 to $2,800. An unfortunate Briton who owed $5,000 to an American would have found the burden of his debt increased from about £1,240 to about £1,785.

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[1] Fred H. Klopstock, "The International Status of the Dollar," *Essays in International Finance*, Princeton University, International Finance Section, 1957, no. 28, p. 16; Robert Triffin, *Europe and the Money Muddle*, Yale University Press, New Haven, Conn., 1957, p. 270; *Federal Reserve Bulletin*, July, 1959, p. 800.

[2] *Federal Reserve Bulletin, ibid.*

[3] *Ibid.*

[4] *Ibid.*, p. 806.

MECHANICS OF FOREIGN EXCHANGE

Kinds of Foreign-exchange Transactions. The continuous swapping of different national moneys among traders provides the basis for the foreign-exchange market. This is not a central physical location like a stock exchange but consists of a number of banks and other firms in financial centers. When an individual wishes to exchange one national money for another, he may deal directly with one of these firms or indirectly through his own bank.

The transaction may take several technical forms. At one extreme, the buyer of foreign exchange may exchange "cash for cash." He may pay in currency or check and receive foreign currency or some sort of demand claim against a foreign bank. This may be a cable draft, through which very rapid transfer of funds can be made to the payee in the foreign country; or he may receive a sight draft, which is similar to a cashier's check on a foreign bank. This can be mailed to the payee in the foreign country. Tourists often buy traveler's checks payable abroad.

However, many foreign-exchange transactions involve some extension of credit at one end or the other. Generally, the exporter wishes to receive money immediately, while the importer prefers to delay payment until he has had time to resell the goods to final buyers. This conflict of goals may be reconciled by credit at either end of the transaction.

Bills, Drafts, and Acceptances. One of the commonest traditional forms of credit in international transactions has been the bill of exchange, which is now used chiefly in the form of a banker's acceptance. Suppose an exporter ships $10,000 worth of goods to an importer. The exporter might send along with the shipment a draft ordering the importer to pay the $10,000 to the exporter or someone else designated by him. This might be payable on demand or after some specified time. The importer, as a condition of receiving the shipment, might be required to "accept" the draft—to endorse it so as to promise to fulfill its conditions. This converts the draft into a promissory note, reflecting the importer's debt to the exporter. The importer can in turn have his bank "accept" the note—in effect, to endorse it as a sort of cosigner to guarantee payment (for a fee). Such a banker's acceptance enjoys high credit standing and can be used by the exporter as collateral for a loan on favorable terms. The exporter could sell the acceptance to his bank (at a discount from face value representing interest), which would in turn collect the proceeds from the importer (through *his* bank) when the time period of the draft expired. Transactions of this sort involve both foreign exchange and credit. In effect, the exporter receives payment in his own currency immediately, while the importer makes payment in *his* currency later on.

There are many forms of credit and payment documents connected with international finance. However, we shall confine our attention to acceptances and sight drafts, which illustrate all the important principles.

How Intermediaries Can Sell Drafts. From the standpoint of the individual trader, the foreign-exchange transaction is simple enough. But what about the banks and other firms which serve as intermediaries? How do they arrange to make the transactions come out even?

Very commonly foreign-exchange transactions are arranged by a pair of correspondent banks in two countries. (Sometimes a single bank may have branches in several countries.) Each of the banks might set up a deposit credit (or overdraft privilege) in favor of the other, on which the latter could sell drafts. Suppose bank A (American) and bank B (British) make such an arrangement, so that bank A has a deposit credit of £1,000 with bank B and bank B has a credit of $2,800 with bank A. Since £1,000 equals $2,800, this will balance on their balance sheets, as follows:

Assets		*Liabilities*	
	Bank A		
Due from B	$2,800	Due to B	$2,800
	Bank B		
Due from A	£1,000	Due to A	£1,000

Now bank A is in a position to sell sterling drafts to Americans who may want to make payments in England. Suppose it sells a draft for £500 to an importer who pays $1,400 (plus commission, which we ignore) by check on his account with bank A. This action reduces bank A's domestic demand-deposit liabilities and also cuts down its deposit credit with B. Its account would be as follows:

	Bank A		
Due from B	$2,800	Due to B	$2,800
	−1,400	Demand deposits	−1,400

The American importer will in turn send the draft to England. Let us assume that the recipient exporter deposits it in his checking account with bank B. Bank B's account will then look like this:

Bank B

Due from A	£1,000	Due to A	£1,000 −500
		Demand deposits	+500

This transaction increases the money supply in Britain and reduces it in the United States.

Bank B can operate in similar fashion. Britishers wishing to make payments in the United States would be purchasing dollar drafts from B and paying with checks on their sterling accounts. If B sells a $1,400 draft for £500 paid by check on bank B and if the draft is deposited in bank A, the final balance sheets would show:

Bank A

Due from B	$2,800 −1,400	Due to B	$2,800 −1,400
		Demand deposits	−1,400 (as above) +1,400

Bank B

Due from A	£1,000 −500	Due to A	£1,000 −500
		Demand deposits	500 (as above) −500

The purchase of dollars has pulled bank B's deposit liabilities back down to their original value, and the deposit of the dollar draft pushed bank A's deposits back to where they started from. Thus the money supplies return to their starting positions in both countries. The reciprocal credits of the banks are reduced, but there is no reason why they should not agree to raise them back to the original level.

Intermediaries Deal in Acceptances. The banks can achieve automatic replenishment of their foreign balances by purchasing acceptances or other credit instruments payable in the foreign country and then collecting the proceeds when they fall due. American exporters may receive bills or acceptances drawn on their British customers and payable in sterling. Bank A may buy these for dollars and send them to Britain for collection through bank B. When collected, the proceeds will be credited to bank A's account. The initial purchase of a sterling acceptance by bank A would affect its account as follows (before maturity):

Bank A

Loans	+$1,000	Demand deposits	+$1,000

So far, the transaction is similar to an ordinary loan. (Creation of deposits can occur only if bank A has excess reserves.) On maturity, the loan asset would disappear. When the loan is repaid by the British importer with a check drawn on bank B, the latter's demand-deposit liabilities would decline, and bank A would acquire a sterling credit with bank B as follows:

Bank A

Due from B	+$1,000	Demand deposits	$1,000

Bank B

		Due to A	+£357 (= $1,000)
		Demand deposits	−357

If bank B purchases dollar acceptances, analogous effects will operate in the opposite direction. Bank B will create sterling deposits in favor of the sellers of acceptances, and dollar deposit liabilities will be canceled in the United States when the loans are collected. Thus if the purchases of acceptances by the two banks are roughly equal, there will again be no net change in the money supply in either country. However, there would be a tendency for the reciprocal deposits of the banks to mount up—a tendency which could be used to offset the depletion from the sale of drafts. Since acceptances are traded in the open market, individual institutions can vary the volume of their purchases to achieve a desired balancing of accounts.

Origin and Clearing of Payments. There is a close similarity between the purchase of sterling drafts by American importers and the sale of dollar acceptances by British exporters. Both transactions tend to decrease the money supply in the United States and increase it in Britain. Both arise chiefly from the shipment of goods from Britain to the United States and represent an offer of dollars for pounds. Likewise, there is a similarity between the purchase of dollar drafts by British importers and the sale of sterling acceptances by American exporters.

Looking at the process as a whole, one can say that, in effect, each nation's export sales provide funds to pay for its imports. The foreign-exchange market transfers dollar deposits from American importers, who exchange them for pounds, to American exporters, who receive them in exchange for pounds.

When the payments pattern is in balance, so that the offer of dollars just equals the demand for them, the foreign-exchange intermediaries in each country find their international accounts in a clearing equilibrium. Inflows are balanced by outflows, with no net change in the national position as a whole. In our example, we simplified this by assuming that the domestic check transactions all involved deposit liabilities of banks A and B. If this does not occur, the banks may face domestic clearing imbalances. Internationally, however, our simplification does not misrepresent the degree of balance.

Settling Imbalances. Suppose the banks find themselves with an international imbalance—perhaps bank A's deposit in Britain is rising, while bank B's deposit in the United States is declining. This indicates that the offer of pounds for dollars exceeds the offer of dollars for pounds. For a time bank A may extend credit to B, perhaps charging interest. This in itself will put pressure on bank B to take steps to end the disequilibrium. Bank B will have an added incentive if bank A refuses further credit.

Bank B can attempt to remedy the disequilibrium by sending assets such as securities or gold to the United States for sale. Such actions will replenish its dollar credit. It might also be more aggressive in buying dollar acceptances payable in the United States. It will probably raise the price it charges for dollars and thus change the exchange rate and discourage transactions involving imports from the United States. Bank A may meet the imbalance by reducing its purchase of sterling acceptances or cutting the rate at which it will sell pounds for dollars. Since some of these actions involve creating demand deposits, they can occur only if the banks have excess reserves.

Thus payments imbalance is likely to set off movements of interbank credit or foreign-exchange assets between the financial intermediaries, with resulting changes in exchange rates and interest rates in the respective countries. We turn now to a more detailed investigation of how exchange rates are determined.

DETERMINATION OF EXCHANGE RATES

Supply and Demand. The determination of rates of exchange between national moneys can be analyzed in terms of supply and demand. The balance-of-payments table furnishes a convenient framework for supply and demand analysis, since it lists all the transactions which represent the demand for, say, dollars and all the transactions which make dollars available to the rest of the world.

We can think of each balance-of-payments item as reflecting a separate supply and demand schedule. If we assume for the moment that the domestic prices of goods and services are given, the quantities which will be offered and taken internationally will depend on exchange rates. If a country's currency is low in foreign-exchange value, its residents will find imports expensive and export sales remunerative. When the pound was reduced in value from $4.03 to $2.80, the pound price of a $2,000 American auto was raised from £484 to £714. The quantity of a country's imports will tend to vary directly and the quantity of its exports inversely with the foreign-exchange value of its currency.

However, the demand and supply schedules relating to foreign exchange depend on the *value* of transactions rather than the quantity. If the elasticities of demand and supply are not extremely low, value and quantity will move in the same direction, and the supply and demand schedules will appear as shown in Figure 12-1.

When the pound is cheap internationally, Americans will want a larger quantity of pounds because they will spend more on British goods. But the supply of pounds will be smaller when the pound is cheap, because Britons will be spending less on costly American goods. Note that the demand for pounds is the supply of dollars, and vice versa.

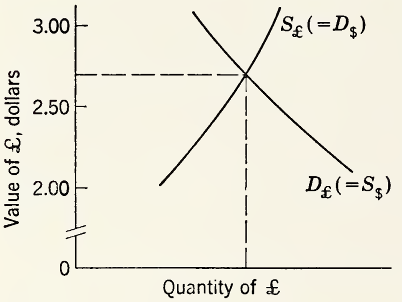

Fig. 12-1. Foreign-exchange supply and demand: the "normal" case.

The rate of exchange will tend to settle where demand and supply are equal. If the supply of pounds arising from British import purchases exceeds the demand for pounds to buy British exports, foreign-exchange firms will find pounds piling up and other currencies becoming scarce. They will therefore tend to cut the price of pounds relative to other kinds of money. Only if supply and demand are equal will there be no tendency for the rate to change.

However, if elasticities of demand are low, the value of goods traded may not move in the same direction as the quantity.[5] If the pound declines in value, Britons may reduce slightly the quantity of American goods they buy but still spend more because each item purchased carries a higher price in pounds. Thus the supply of pounds might be larger when the pound is cheap! The demand for pounds will still show the normal downward slope, but if American demand for British goods is inelastic, Americans will want only slightly more pounds when they are cheap. Such a situation may produce the pattern shown in Figure 12-2.

When the supply curve is sloped backward in this manner, the market may be unstable. At the point of intersection (£1 = $2.80), there would be no tendency for the rate to change, but deviations from this point would not tend to correct themselves. If the rate were

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[5] Elasticity of demand is the ratio between the percentage change in quantity purchased and the percentage change in price. If demand is inelastic, less money will be spent on the product at a lower price.

£1 = $2.50, the supply of pounds would exceed the demand, which would drive the price of pounds down still further. If the pound were selling for $3.00, the demand for pounds would exceed the supply and force the price up further. There are limits to this divergence of supply and demand, but considerable instability of rates might result if left uncontrolled.

Capital Movements and Exchange Rates. International movements of capital, particularly short-term capital, may affect the determination of exchange rates. We have already seen one instance of this. When demand for one currency exceeds supply, there is a strong tendency for banks and foreign-exchange firms in the deficit country to borrow from their counterparts abroad. Such transactions may reduce rate fluctuations.

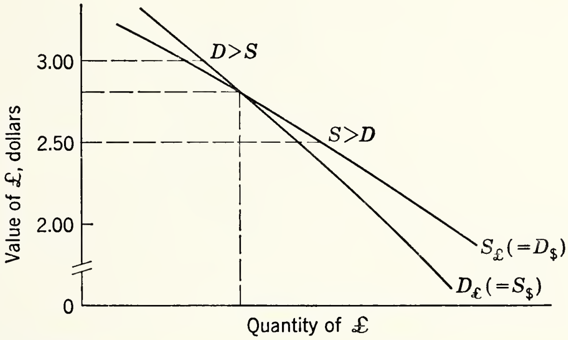

Fig. 12-2. The foreign-exchange market: inelastic import demand.

Traditionally, monetary policy has attempted to influence the international flow of short-term capital through interest-rate variations. If the supply of pounds exceeded the demand for them, the Bank of England might raise its discount rate, and short-term lending rates would tend to rise in the London money market. Higher rates might stimulate a flow of loanable funds into Britain, which would raise the demand for pounds and remove the pressure from the exchange rate. This use of discount-rate policy has long been a central consideration of the Bank of England. Such capital movements are not likely if exchange-rate risks are high or if foreign-exchange transactions are government-controlled.

Speculation and Exchange Rates. Foreign-exchange dealers may speculate in foreign exchange in anticipation of changes in rates. Such speculative transactions will influence the supply and demand schedules. In some cases, speculation will tend to increase demand and supply elasticities, which will facilitate reaching equilibrium and reduce rate fluctuations. This will be the case if the speculators have expectations of "normality." If the value of the pound declines and if speculators believe it is below "normal" and will tend to rise again, they will buy pounds and thereby slow the decline.

If speculators interpret current movements as heralding larger movements in the same direction, the results will be different. A decline in the pound may then set up a flight from it, for fear it will decline further. Speculators will sell it for other currencies, and its value *will* tend to fall further unless some other force intervenes.

If exchange rates are expected to change, persons having international payments to make may alter their timing for speculative purposes. If the pound is expected to decline, persons having payments to make into Britain will tend to delay them, while outpayments from Britain will tend to be accelerated. This will add to the downward pressure on the value of sterling. Speculation of this nature was a major factor in the periodic foreign-exchange crises experienced by Britain, France, and other countries in the 1950s.

Although foreign-exchange rates might be allowed to fluctuate freely without government influence, our analysis of elasticities and speculation has indicated that under certain circumstances the result might be extreme instability of rates. Rate instability would undermine the willingness of firms to trade and invest internationally and would weaken the price system as a guide to import and export decisions. Consequently, most governments have adopted policies designed to keep exchange rates fairly stable. We shall examine some of these in the next few sections.

Exchange Rates under a Gold Standard. In the late nineteenth and early twentieth centuries, the normal exchange-rate policies centered around the gold standard. Each country defined its monetary unit in terms of a certain physical weight of gold. Gold coins circulated as full-bodied money, and currency and checking deposits were freely convertible into gold on demand. Under these conditions, national currency units tended to exchange for one another in the same ratio as their respective gold equivalents.

This tendency can be illustrated by the pound-dollar relationship prior to 1931. The gold content of the dollar was 23.22 grains, giving a price for gold of \$20.67 an ounce (= 480 grains). The pound sterling had a gold content of 113 grains, giving a price for gold of £4 4s. 11d., or about £4¼ per ounce. From either of these ratios, one can determine the mint par between the dollar and pound, which was about £1 = \$4.87. Thus at any time during this period gold worth £1,000 in Britain would have been worth \$4,870 in the United States.

The exchange rate would stay close to the ratio of gold values. Should the pound rise in value relative to the dollar, persons wishing to buy pounds might soon find it advantageous to buy gold for dollars, send it to England, and sell it for pounds. However, because such shipment would entail costs for freight, insurance, interest, etc., it would be worth while to ship gold only when the exchange rate diverged enough from par to cover these costs. Suppose costs of gold movement were 1 per cent of the value. It would be possible to buy 1,000 ounces of gold in the United States for $20,670, ship it to England for $207, and sell it for about £4,250. Pounds obtained in this manner would cost about $4.92 each (= $20,877/£4,250). This would be the top limit to the value of the pound, since no one would pay more for it.

A similar limit would exist on the other side. Britons could obtain dollars at a ratio of about £1 = $4.82 by shipping gold to the United States. Consequently, they would never accept less than $4.82 to the pound, and the pound would never sell for less.

The pound's value would therefore remain within the range between $4.82 and $4.92. These limiting values are called the "gold points." For England £1 = $4.92 would be the gold import point and £1 = $4.82 the gold export point. The actual spread of the points would depend on shipping and other costs. There would be no demand for pounds above the gold import value, and no supply of them in the market below the gold export value.

Gold-standard conditions tended to create a stabilizing pattern of exchange speculation. The further a rate went from mint par, the greater the likelihood that the movement would reverse itself. Thus speculators would tend to buy pounds when they went below mint par and sell them when they went above it. Such speculation would increase the elasticity of supply and demand and reduce the necessity for gold flows actually to occur.

Since 1931, the use of gold in world finance has deviated substantially from this simplified example. Most countries do not have gold coins circulating, nor do commercial banks hold gold as reserves. National gold supplies are usually concentrated in the possession of central banks and treasuries. Usually there are restrictions on the freedom of private individuals to acquire gold. The United States Treasury will sell gold only for approved use in manufacturing or for export sale to foreign central banks or similar agencies. Most gold settlements are carried on among official bodies, not by private arbitragers.

Furthermore, the "movements" of gold may be nominal. Since the 1930s a large part of the free world's gold stock has been deposited for safekeeping in the custody of the Federal Reserve Bank of New York. A "shipment" of gold from Britain to France might occur by having a

Federal Reserve employee shift a couple of gold bricks from one pile to another!

Exchange Stabilization without Gold. A country can stabilize its exchange rates without relying on gold. The government may instead buy and sell foreign exchange as needed to keep rates stable. After Britain left the gold standard in 1931, the British government instituted an exchange stabilization program of this sort which is still in operation. Such a program means that the British authorities are prepared to buy pounds and sell foreign exchange when the demand for foreign exchange is high—else the pound will depreciate. To do this, they must have a supply of foreign exchange. This will impose on the authorities responsibility for settling imbalances through the shipment of gold, through international credits, or through other settlement transactions. Otherwise they may run out of foreign exchange during deficit periods or accumulate more than they want during surpluses.

Cross Rates and Arbitrage. Many different national moneys are exchanged for each other in the foreign-exchange market. When more than two currencies are compared, their rates must be consistent with each other. If £1 = $2.80, and $1 = 500 francs, £1 must equal 1,400 francs. Such multilateral comparisons are called "cross rates." If the cross rates are not consistent, profitable arbitrage opportunities are created. Given the two dollar rates above, if the franc sells at 1,390 to the pound, arbitragers will buy pounds for francs and exchange the pounds for dollars and the dollars for francs again. For 139,000 francs one could buy £100, swap that for $280, and use that to buy 140,000 francs. Such arbitrage will tend to push the cross rates toward mutual consistency.

FOREIGN-EXCHANGE CONTROL

Purposes of Exchange Control. In the 1930s and 1940s, many countries imposed detailed restrictions on foreign-exchange transactions. Many of them prohibited free international transfers of funds and required that individual transactions be made only with government approval. Firms acquiring foreign exchange through exports or other receipts were usually obliged to sell it to the government, while prospective purchasers were required to buy exchange from the government, which was under no compulsion to sell.

The leading motives for imposing exchange controls were the following:

1. During the Depression, exchange control was a method by which imports could be curtailed in order to raise national income and prevent monetary deflation.

2. During the war, exchange control was a means by which the composition of imports and exports could be centrally controlled to ensure purchase of imports of the highest priority.

3. During the entire period since 1929, exchange control has been a means of controlling capital flight—movement of real or financial wealth out of a country to escape onerous political conditions, persecution, inflation, or high taxes or simply to speculate against the domestic currency.

4. Individual countries have imposed exchange controls to prevent their exchange rates from declining in the face of imbalance in payments. They have wanted to avoid adverse movements in their terms of international trade (prices of exports relative to prices of imports) or in the real value of international indebtedness.

5. Some countries adopted exchange control in order to discriminate among countries or types of transactions through multiple exchange rates. Without controls, arbitrage would make multiple rates difficult to maintain.

Examples of Exchange Control. One of the most important exchange-control programs covered the sterling area, including Great Britain, most other Commonwealth countries, and others which had used the pound sterling as their chief international financial medium. Under the control program adopted early in World War II, payments among member countries were relatively free from control. Payments by sterling-area residents to other parts of the world could only be made with official approval, and most sterling balances received in payments by nonresidents could not be converted into other currencies without official sanction. A single exchange rate applied to all transactions.

Because of its size and diversity, the sterling area provided considerable scope for beneficial specialization and exchange among its members. However, its controls operated to discriminate against purchases from outside, particularly from the United States. Countries selling goods to England could not ordinarily use the proceeds to acquire dollars directly. Countries in the sterling area were encouraged to keep their purchases within it because of the limits on transfer of resident accounts.

In 1954, restrictions on the use of nonresident funds were greatly reduced; and in 1958, the last nominal restrictions on the convertibility of nonresident sterling were removed. However, *resident* sterling remained subject to controls. In this manner, foreigners were encouraged to use sterling as international money, while sterling-area residents were still unable to import too much or to transfer capital out of the country.

Exchange-control programs have been very common in less industrially developed countries. These have been adopted for many objectives—to influence the composition and volume of imports and exports, to encourage capital inflow and discourage its outflow, to avoid deficits in the balance of payments generally, to yield revenue to the government, and to influence the domestic distribution of income.

In recent years, many Latin American exchange-control programs have relied on certain common devices:

1. Use of multiple rates to discriminate among commodities, among foreign countries, and against capital transfers.

2. Use of a free exchange market through which certain categories or transaction may (or must) pass. The free exchange rate in this market is likely to reflect a lower value for the home currency than do the rates for controlled transactions.

3. Power of exchange authorities to refuse to sell foreign exchange.

A common practice has been to sell foreign exchange cheaply for "essential" imports but to charge more for it (or require that it be purchased through the free exchange market) for less essential items. The foreign-exchange proceeds from exports of primary products in inelastic supply might be purchased at an unfavorable rate in home currency as an export tax for revenue or to encourage production of other things. Capital transfers have often been required to pass through the free market, which makes it cheap for funds to flow into the country but costly for them to leave.

However, multiple-rate systems have often run afoul of conflicting objectives. Argentina offered an unfavorable rate for exports of primary products as an export tax, only to see resources shift into production of items in which the country's comparative advantage was less. Charging high exchange rates for funds used to import luxuries has in some cases acted as a protective tariff and encouraged diversion of domestic resources into production of the luxury items rather than "essential" products.

Unfavorable experiences with conflicting objectives and administrative difficulties have led many Latin American nations to move toward simpler exchange-rate structures. Multiple rates are still widely used, however, and the fluctuating free rate has proved very popular. These fluctuating rates, insulated against capital flight and speculation by licensing or other controls, provide a buffer against externally caused fluctuations in price and income levels.[6]

Problems of Exchange Control. Use of exchange-control policies creates numerous economic and administrative difficulties for individual countries and for the trading world as a whole. Chief among them are the following:

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[6] See Lawrence W. Towle, *International Trade and Commercial Policy*, 2d ed., Harper & Brothers, New York, 1956, pp. 328–330; Francis H. Schott, "The Evolution of Latin American Exchange Rate Policies since World War II," *Essays in International Finance*, 1959, no. 32.

1. The price system may not function as an efficient guide to import and export decisions if individuals are not free to buy and sell at the existing levels of prices and exchange rates. Arbitrary exchange rates may create incentives for inefficient production and resource decisions. Multilateral transactions are impaired when money received from one country cannot freely be used to buy from another.

2. Exchange control usually results in (or perpetuates) an excess of demand for foreign exchange over supply. The nominal value of the controlled currency may remain abnormally high, thereby creating strong incentives to import and reducing desires to export. The exchange authorities must decide which requests for foreign exchange to honor. Temptations leading to corruption may result. Favored importers may make windfall gains. The controls and artificial rates may intensify the supply-demand disequilibrium which justified imposing controls initially.

3. No control system is foolproof against evasion, and if evasion is widespread, the control system may be worse than no controls at all. Tourists may mail or carry currency out of the country. Exporters may use false invoices, so that they need turn in to the authorities only a portion of sale proceeds. If these practices are extensive, a country may find its international accounts are a drain of valuable resources with little of value coming in return.

Enforcement of exchange control demands cooperation from the commercial banks. Even with such cooperation, it is almost impossible to prevent funds from being transferred from one account to another on the books of the banks within one country. Thus it would not be difficult for a British resident to make a payment to an American if the latter were willing to accept a deposit credit in a British bank, perhaps in the name of some intermediary. Because such transfers cannot be prevented, there has usually been a free market for "blocked" funds in which they sell at a discount from par reflecting the legal risks and red tape entailed in using them.

In the late 1950s, most European countries greatly relaxed their direct controls over foreign-exchange transactions. West Germany withdrew virtually all restrictions, and Britain, France, and other major trading nations removed restrictions for nonresidents. Most economists welcomed this trend toward freer markets.

EQUILIBRIUM IN THE BALANCE OF PAYMENTS

Meaning of Equilibrium. The balance of payments of any country always balances statistically because of the definition of terms, but it is not always in equilibrium. The manner in which the equilibrium adjustments in international payments interact with domestic national incomes, prices, money and credit conditions, etc., is an important matter of economic concern.

For our purposes, we shall identify equilibrium in the balance of payments as a situation which contains no inherent tendencies toward change. If things are there, they will tend to stay there; and if they are not there, they will tend to move toward the equilibrium position. Since conditions are usually out of equilibrium, it is the direction and speed of change rather than the destination which is of chief interest.

Let us assume that a country's international account consists of only three types of transactions—imports and exports of goods and services; imports and exports of long-term securities, which depend solely on relative interest or profit rates in various countries; and movements of gold, money, or foreign-exchange assets, which are balancing items required to make the entire account come out even statistically. With these assumptions, the balance of payments will be in equilibrium when there are no net movements of gold, money, or similar assets. If the country has an export surplus, it will be exporting long-term capital (by importing securities) in equal amounts. If it has an import surplus, it will be importing long-term capital.

Such a situation contains no inherent forces tending to move the balance of payments from its position, although of course it may be moved by forces originating autonomously in the trading countries. However, if the equilibrium conditions are not met, forces originating within the pattern of international transactions itself will tend to cause changes in the economies of the trading countries which will in turn react on their international transactions.

Equilibrium in the balance of payments will correspond to a state of balance in the foreign-exchange market. The demand for foreign exchange to buy imports and invest abroad will be matched by the supply from exports and securities sales. No traders or foreign-exchange firms will find themselves stuck with unwanted balances of foreign money, and no international movements of foreign-exchange assets between financial institutions need occur.

Nature and Causes of Disequilibrium. In a disequilibrium situation, a country may have a deficit or surplus in its international balance. A deficit means that a country is buying more goods, services, and investment assets than it is selling and that it is losing gold, money, or other foreign-exchange media in payment. A surplus means the opposite. For the world as a whole, if some countries have deficits, others must have surpluses of equal amount.

Let us examine some of the ways in which disequilibrium may come about and the ways the trading countries may adjust to it. We shall concentrate on the deficit country. For simplicity, let us assume that country A is in equilibrium and that it has no long-term capital movements, so that current imports and exports are equal. Country A may experience a deficit in two ways—its imports may increase, or its exports may fall. The chief reason for the former is likely to be higher demand in country A; for the latter, lower demand in other countries. For most countries, short-run variations in imports arise chiefly from changes in the level of *GNP* expenditures. One can speak of a "propensity to import," since imports tend to rise or fall with *GNP* in a manner similar to saving and tax revenues.

Country A's deficit may reflect cyclical movements in incomes at home or abroad. If country A is experiencing rising *GNP*, its imports will tend to rise. If other countries' incomes are falling, they may buy less from country A. These tendencies can be reinforced by price changes accompanying *GNP* movements. However, the disequilibrium may also arise from changes in consumer tastes or technology in country A or abroad.

Country A's deficit can set off numerous repercussions on levels of *GNP*, prices, exchange rates, money, and credit conditions in the trading countries. These repercussions can operate to push country A back toward a position of international balance. Let us examine some of them individually.

Equilibrium Adjustment through Income Effects. Country A's deficit can have important effects on *GNP* in that country and in the rest of the world. If *GNP* is increasing in A to begin with, the rise in imports will operate to check that increase. The funds spent for imports are withdrawn from A's main money circuit. Imports combine with domestic taxes and saving to slow the rise of *GNP*, which in turn reduces the tendency for imports to rise still further. If A is already near full employment, so that rising *GNP* is likely to cause price inflation, the check imposed by imports may be a beneficial one, helping to restrain inflation. But if A is emerging from a depression and has considerable unemployment, the restraint imposed by rising imports may be most unwelcome. It is easy to see why countries which were in this position in the 1930s imposed restrictions on imports.

If country A's deficit arises because a change in taste or technology leads its residents to buy more imports and less home products, *GNP* will actually be reduced. Domestic producers will find their sales reduced and will cut back on their payments of income. The multiplier effect will go to work in a downward direction, and the resulting decline in *GNP* will curtail country A's imports.

Similarly, country A's *GNP* will decline if foreign countries reduce their purchases of A's exports. This time it will be export producers who initiate the decline, but reduced incomes will tend to spread the decline as consumers cut their purchases of domestic products in turn.

When *GNP* declines, it is likely that economic welfare in country A will be adversely affected by falling production and employment. Country A may thus be the innocent victim of economic depression which is taking place in some other country. In the 1930s, declining *GNP* in major countries like the United States tended to pull the rest of the world down as well. International trade can be an important transmission line for instability. In such circumstances, again, one could understand why country A might impose import restrictions to insulate itself against depression.

However, the decline in economic welfare in country A may be somewhat counteracted by what happens in the rest of the world. If country A initiates the disequilibrium by increasing its imports, other countries will find themselves with increased export sales. This condition will raise their incomes and *GNP* and will probably result in higher imports by them and higher exports by A.

Whether this process is beneficial or not will again depend on the state of production and employment. If other countries are at full employment, A's higher imports may produce inflation and will be unwelcome. In recent years, international trade has tended to transmit inflationary pressure from the countries of origin to the rest of the world. However, if resources are unemployed, the other countries will welcome the rise in sales to A.

Of course, if other countries suffering declining *GNP* have initiated A's deficit by their reduced purchases, they may succeed merely in pulling A down with them. Although their reduced imports from A will slow their decline in *GNP*, A's probable cut in imports from *them* will add to their troubles.

The income reactions discussed here are really a type of multiplier effect. Rising incomes in one country tend to transmit themselves abroad. Country A buys more imports, the exporting countries' incomes rise, they buy more from A, therefore A's income rises, etc. Imports and exports may chase each other up and may not settle at any level so long as the expansionary forces are at work in individual countries.

Likewise the international multiplier can work downward. The country initiating the decline cuts its import purchases; exporting countries experience declining sales, incomes, and expenditures and consequently reduce their imports, which may push the first country down still further. Both imports and exports may fall and can only stabilize when internal forces making for depression have been counteracted.

We can conclude that, when forces making for disequilibrium originate in country A, its balance-of-payments adjustments will tend to counteract them. Thus an initial increase in imports by A will tend to set off forces cutting imports back. But if A's deficit results from depression in other countries, the response is not really stabilizing. Although A's imports will tend to be pulled down to match the declining exports, this cutback will pull foreign incomes down still further, which may reduce A's exports again.

Equilibrium situations in *GNP* and international payments are thus mutually dependent. The balance of payments cannot be stable if *GNP* in the trading countries is changing, since that will lead to import-export changes. Conversely, if a country's international account is not in equilibrium, its *GNP* will tend to be affected.

Equilibrium Adjustment through Exchange Rates. A disturbance to equilibrium may set off reactions in exchange rates which can help restore equilibrium. When country A experiences a payments deficit, the supply of its currency will exceed the demand internationally, and its foreign-exchange value will fall. This makes A's products cheaper for foreigners, while imports become more expensive in A. Ideally, this situation might stimulate an increase in the value of export sales and a reduction in the value of imports to help restore equilibrium; but, as we have seen, inelastic import and export demand schedules may work against this stabilizing movement. Under the gold standard or similar stabilization program, possible variations in rates may be too small to have any influence. If rates are free to vary, on the other hand, they may set off adverse speculative movements which render departures from equilibrium self-aggravating instead of self-correcting.

However, many countries have looked longingly at the possibility that exchange-rate variations might ward off the effects of international disequilibrium on domestic incomes, employment, and prices. Since 1950 the Canadian dollar has been permitted to fluctuate in exchange value as an experiment in this direction. Exchange controls were abolished, and foreign-exchange transactions by the government have been limited to preventing wide short-run fluctuations. Because of the strong desire by Americans to invest in Canada, the Canadian dollar rose from a 10 per cent discount to a premium of several cents over the American dollar.

Annual fluctuations in the Canadian-American exchange rate have averaged only about 3 per cent per year. This stability has reflected a degree of confidence which has led to a pattern of stabilizing responses to exchange-rate variation. A decline in the Canadian dollar has, in other words, led to increased willingness to hold it in anticipation of subsequent rise. Shifts in the timing of receipts and payments have been the major method of implementing such response.[7]

Flexible rates have also been used with some success in Latin America. There the free rate has usually been only one of a multiple-rate category, and exchange controls have continued to exist. For the Latin American countries, the fluctuating rate has served as a buffer against instability originating outside their boundaries. By contrast, the Canadian rate has served more to dampen the rather large variations in import demand over the business cycle.

Equilibrium Adjustment through Monetary and Credit Conditions. Disequilibrium in the balance of international payments is likely to set off several repercussions in the area of money and credit. The payments deficit in country A is likely to reduce the money supply there. Private demand deposits are destroyed as importers buy foreign exchange or gold from the banking system. Correspondingly, the surplus countries experience an increase in private demand deposits as their banking systems buy gold or acceptances. (See pages 312–314.)

In addition, commercial bank reserves may be decreased in A if the banks buy gold or other foreign-exchange assets from the treasury or central bank and export them. Correspondingly, bank reserves will tend to increase in the surplus countries receiving such assets.

Partly in consequence, interest rates may rise and credit tighten in country A. In addition to the influence of reduced money and bank reserves, A's central bank may follow the traditional pattern of the Bank of England and raise its discount rate. Correspondingly, interest rates may fall and credit ease in the surplus countries. Tighter credit and higher interest rates may push *GNP* down in country A or slow its increase by curbing spending on credit. Likewise, easing of credit should tend to raise *GNP* or slow its decline in the surplus countries. These *GNP* movements should tend to reduce A's imports and increase its exports. If there are capital movements, they may produce an additional equilibrating force. Higher interest rates in A may attract an inflow of foreign loanable funds, whereas the lower rates in other countries may repel them.

If country A's international deficit is the result of domestic inflation, the tightening of credit may be salutary; but if A is pulled into a deficit by declining foreign demand, this sort of monetary policy may impose tight credit on top of existing tendencies toward depression. Thus international equilibrium might be put ahead of domestic stability.

Equilibrium Adjustment through Price Changes. The various forces we have noted may set off changes in the price levels of the trading countries. If country A sustains a decline in *GNP*, its products may fall in price, a change inducing foreign buyers to purchase more of them. The surplus countries may experience price increases if their *GNP* levels increase, thereby encouraging them to import more and reducing A's desire to buy their products.

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[7] See Samuel I. Katz, "Two Approaches to the Exchange-rate Problem: The United Kingdom and Canada," *Essays in International Finance,* 1956, no. 26.

Traditionally, it was expected that price adjustments would play a major role in correcting disequilibrium. If country A could correct its deficit by price reductions, it might avoid painful reductions in production and employment. However, there are several serious impediments to achieving this result, as follows:

1. Elasticities of demand for imports and exports may be low. If demand for A's exports is inelastic, a reduction in their price will reduce the money value of sales. Likewise, country A may spend more money to buy more expensive imports. Thus price shifts may aggravate disequilibrium. This problem is of particular contemporary concern to countries exporting large quantities of "primary products" such as coffee, sugar, and rubber, for which demands are often inelastic.
2. Price flexibility downward may be difficult to obtain in industrial countries because of wage inflexibility, government price supports, business oligopoly, etc. If prices do not fall when *GNP* declines, the burden of the decrease is thrown on production and employment.
3. Countries with payments surpluses may wish to restrict price increases to prevent inflation. If they do, such action may increase the adjustment burden in the deficit country.

Capital Movements and International Equilibrium. So far most of our discussion of equilibrium adjustment has been based on the assumption that country A's international transactions were confined to imports and exports of goods and services. However, movements of long-term and short-term capital must also be taken into account for two reasons. First, capital movements can be a source of disequilibrium and set off repercussions on other international transactions. Second, capital movements will be influenced in part by the rest of the foreign balance and may react to help restore equilibrium.

Suppose country A is in equilibrium, with imports equal to exports and long-term capital inflows and outflows just equal. Then some current saving is diverted from the domestic loanable-funds market into foreign investment. This change can set off many of the adjustments noted above. The reduction in loanable funds in A may tighten credit, reduce *GNP* somewhat, and hence cut A's imports. Exchange rates will turn against A. More important, the flow of investment funds into country B will have a stimulating effect on *GNP* there and will raise B's currency in foreign-exchange value. These effects will encourage more imports and less exports by B. If country A is lucky, the buoyancy in country B may be strong enough to counteract any tendencies toward depression in A. The normal tendency, in any case, would be for the country exporting capital (by importing securities) to develop an export surplus on current account, and for the country importing capital to develop an import surplus. *GNP* levels, exchange rates, prices, and credit conditions may all contribute to this result.

Capital movements can also help a country adapt to a disequilibrium on current account. The deficit country may attract a flow of capital from abroad by permitting interest rates to rise. In addition, the excess imports will frequently be purchased on credit, so that temporarily at least they create their own financing. Further, the decline in country A's currency on the exchange may lead speculators to hold it and sell others. However, these factors will ward off the consequences of disequilibrium only temporarily. International balance based on large net movements of short-term capital is not really equilibrium.

Capital movements also may aggravate disequilibrium. If country A is incurring an international deficit, foreign investors may fear that its economy is headed for depression and become less willing to invest there, or they may fear that A's currency will decline further in foreign-exchange value. The problem may be aggravated if country A is likely to adopt domestic counterdepression policies which offend sensitive investors—taxes on high incomes and wealth, deficit spending—or if exchange controls are likely. Capital flight originating in such fears can exacerbate the problems which created it; it may lead to a monetary panic which worsens deflationary tendencies and to a rapid depreciation in the international value of A's currency, which makes exchange control seem necessary.

Adjustment through Direct Controls of Trade and Exchange. In the last thirty years, countries have frequently rejected the kinds of automatic market adjustments to disequilibrium which we have been describing. In large part, this rejection arose from the disturbances attending depression or war. During the Depression, countries were "innocently" subjected to disequilibrium by depressions elsewhere which cut their export markets and created incentives toward capital flight. During the war and postwar reconstruction periods, it was generally felt that monetary conditions were unavoidably inflationary and that capital flight or exchange depreciation would result if international transactions were left uncontrolled.

In consequence, many countries reacted to payments deficits by imposing or increasing direct controls over trade and foreign exchange. Exchange controls were particularly popular because they could restrict current imports as effectively as tariffs or quotas and could also provide protection against capital flight, which might otherwise drain off scarce foreign exchange and undermine a nation's financial structure.

One of the most drastic and distinctive programs of exchange and trade control in the 1930s was developed by Germany. Early in the Depression, the Germans succeeded in obtaining "standstill agreements" with their foreign creditors which enabled the Germans to pay some of their foreign debts with "blocked" accounts in German banks. These could be used to make purchases or investments in Germany, and the holders were free to transfer them to others by informal sale or exchange; but they could not be converted into foreign currency directly. Many holders disposed of their blocked marks at a discount, which served to make German exports cheaper and subsidized their expansion.

After Hitler came to power in 1933, the German state embarked on a vigorous program of economic and military expansion. Emphasis shifted to a policy of economic warfare designed to penetrate neighboring countries (particularly in Eastern Europe) and bring these under German domination and economic exploitation. The Germans pursued an interlocking policy of trade agreements, exchange controls, and multiple exchange rates. By trade agreements, the Germans agreed to accept exports from their neighbors, many of whom were desperate for markets. But the Germans usually paid with special types of marks, which could be used only for limited purposes or which had exchange rates rigged according to their use. Through these devices, favored home industries could be subsidized and the foreign countries subjected to a form of monopolistic price discrimination.

After 1936, the German policy was designed more to facilitate imports than exports. Foreign sellers were subjected to lengthy delays in acquiring their marks in payment. Kindleberger described the workings of this policy in the following passage:[8]

> Germany . . . exploited this bilateral clearing system to borrow, in effect, from the poorer countries of southeastern Europe. Germany bought raw materials and foodstuffs from Yugoslavia, Rumania, Bulgaria, Hungary, etc., with an open hand, paying high prices in terms of dinars, lei, leva, and pengoes. The exporting interest, powerful in these countries, succeeded in getting the central bank to finance their export surpluses. Large claims on Germany were accumulated, but these could be used only as Germany reluctantly made goods available from its rearmament program, at prices dictated by Germany. This is the explanation of the fact that countries of southeastern Europe were flooded with aspirin and harmonicas, which were among those goods made most readily available by Germany to its creditors.

[8] Charles P. Kindleberger, *International Economics,* 2d ed., Richard D. Irwin, Inc., Homewood, Ill., 1958, p. 284.

INTERNATIONAL EQUILIBRIUM AND ECONOMIC WELFARE

The Traditional View. Our analysis illustrates clearly the possibility that a serious conflict may arise between the requirements of international equilibrium (without direct controls of trade or foreign exchange) and domestic full employment. A country experiencing a deficit in its international payments may be forced into a domestic deflation to restore equilibrium. This has led many economists to conclude that maintenance of domestic stability is incompatible with free internationaal trade.

The traditional view has been that this conflict is not substantial. It stressed the potential benefits to productivity arising from free international exchange directed by the price system—benefits which could be expected only if exchange rates were relatively stable and currencies freely convertible into each other. Second, this view argued that adjustments required to eliminate international disequilibrium could be made in relatively painless fashion through changes in prices, exchange rates, and interest rates. Conditions required for such painless adjustment would include the following:

1. Prices (and costs) must be flexible upward and downward.
2. Elasticities of demand for imports and exports should not be unduly small.
3. Capital movements must be sensitive to interest-rate changes.
4. Foreign-exchange speculation must be generally stabilizing.
5. Countries experiencing an international surplus should be willing to increase imports to ease the adjustment burden on the deficit countries.

Finally, the traditional view argued that the discipline of the international gold standard, working automatically, was a better basis for monetary policy than domestic management by individual governments, which might lead to chronic inflation and irresponsible increases in government expenditures.

Impact of the Depression. The catastrophic depression of the 1930s eclipsed this traditional faith in the beneficial workings of free trade and payments. Instead, international transactions became a means of transmitting disaster from one area to another. Deflation and depression came through reduced exports, reduced foreign investment, and capital flight. Once into the Depression, free international transactions appeared as an impediment to national policies for recovery. The coming of war provided additional excuses for direct controls of trade and payments.

But the experience of the 1930s may have been interpreted to prove too much. For one thing, although international trade and payments served to transmit deflation and depression, they clearly did not cause them. The underlying forces for depression came from domestic economic conditions and were aggravated by inappropriate government monetary and fiscal policies in major countries, notably the United States, Germany, and Great Britain.

Second, the experience of the 1930s probably led to an unduly pessimistic estimate of the degree to which the five technical conditions which the traditional argument premised were fulfilled. Elasticities of demand were unduly depressed by protectionism and domestic surpluses and deflation. Inappropriate capital movements and speculation were aggravated by depression itself and by the deterioration of the world political climate. Furthermore, the depressed 1930s appeared to contemporaries to be a period of surpluses, in which problems of efficiency in resource allocation were eclipsed by the problem of putting existing resources to some use.

Toward a Reconciliation? Experience of the world economy in the last fifteen years has increased appreciation of the virtues of the traditional attitude. Full employment, scarcities, and pressures for higher real incomes have revived concern over the efficient use of resources and the benefits from international specialization and exchange. Willingness by the major trading countries to follow appropriate domestic policies to maintain full employment has made repetition of the international financial debacle of the 1930s unlikely.

Recent experience has been a reminder that a country experiencing an international deficit is not always the innocent victim of external pressure but may itself be to blame because its domestic policies are unduly inflationary. Postwar payments deficits in Western Europe have usually resulted from domestic inflation, and this influence has been even more true for other areas. The disciplines and checks which international balance imposes may be quite appropriate and desirable to curb such tendencies.

The revived recognition of the virtues of relatively free international trade and payments has not, however, involved a rejection of the goals of full employment and domestic stability. The postwar period has seen effective steps taken by the industrial nations of the free world to seek reconciliation of these goals through a combination of domestic commitments to countercyclical finance by individual countries and a cooperative effort toward eliminating barriers to trade and payments. Each nation's adjustment problem is eased if the others avoid depressions. Further, the mutual relaxation of trade restrictions avoids the danger that one country acting alone to reduce import barriers might sustain a disastrous payments deficit.

This movement toward reconciliation of economic objectives had made impressive strides by the end of 1958. Most European nations had generally eliminated exchange controls for nonresidents and relaxed those imposed on residents. The process of restoring freedom of trade and payments was greatly aided by the operations of such international organizations as the European Payments Union, the International Monetary Fund, and the General Agreement on Tariffs and Trade. In the following chapter, we shall describe the history and functioning of such institutions within a broad context of the historical development of trade and finance.

SUMMARY—THE THEORY OF INTERNATIONAL FINANCIAL RELATIONS

International financial relations exist to promote economic welfare through international specialization and exchange of goods and services along the lines of comparative advantage. If individual countries specialize in production of things for which their resources are best suited, instead of being self-sufficient, the total world output of goods and services can be increased and general welfare enhanced.

International financial relations are complicated by the fact that countries have different monetary units, which must be exchanged for one another. The level of foreign-exchange rates becomes an important factor in the influence of the price system on international specialization. Currency and checking deposits are generally used in making international payments, but short-term credit instruments such as acceptances are also employed. Banks and other financial firms provide a market for foreign exchange by buying and selling drafts and acceptances. American purchases of foreign exchange may be made to finance current imports or for investment. Such purchases will tend to reduce the money supply in the United States and increase it abroad. The purchases and sales of foreign exchange by dealers represent a large clearing operation within each country, a transaction in which foreign funds are transferred from export sellers to import buyers. However, when the transactions do not clear, financial institutions may have to settle their international accounts by sending gold or other assets abroad.

Foreign-exchange rates are determined by the supply of and demand for currencies in terms of each other. The foreign demand for dollars arises from the demand for the things dollars can buy—American goods, services, or investments. American demand for foreign funds reflects demand for foreign products or assets. Ordinarily, the value of a currency will vary directly with the demand for it and inversely with the supply, but exchange rates are seldom allowed to fluctuate freely. The gold standard provided one institutional mechanism for keeping exchange rates fairly stable. In the modern world, some countries practice exchange stabilization by open-market dealings in foreign exchange, while others impose direct controls on foreign-exchange dealings and rates.

A country's international transactions can be shown in an orderly fashion by means of the balance of international payments. Statistically, this transactions record always balances, but it is not always in equilibrium. Equilibrium exists when the value of "things" (goods, services, securities, etc.) which people are willing and able to import equals the value of "things" they are willing and able to export. At equilibrium there are no "induced" movements of gold or money to other countries.

If the balance of payments is out of equilibrium, it may be pushed back toward it by a number of forces. In the deficit country, these may include reductions in *GNP*, rising interest rates and tighter credit, falling prices, and lower exchange rate. All these can induce reduced imports, more exports, and a smaller capital outflow and a larger inflow. The surplus country will experience opposite forces with opposite effects. However, the equilibrating process may impose painful adjustments on individual countries, who may suffer depression or inflation.

Because international adjustment of the balance of payments imposed painful effects on domestic welfare, many countries moved toward direct controls of trade and foreign exchange in the 1930s and 1940s. The central problem of current international finance is how to reconcile the traditional doctrines of specialization and comparative advantage with the goals of full employment and economic development. Experience of the European economy in the 1950s indicates that progress has been made toward such a reconciliation.

QUESTIONS FOR STUDY

1. "Purchases of foreign exchange by Americans tend to reduce the money supply in the United States." Explain.
2. Between 1955 and 1958, United States imports of automobiles increased from about $60 million to about $500 million. Assuming this represented a shift of equal amount away from home-produced autos, trace the effects of this on *GNP* in the United States and abroad, on exchange rates, and on American imports and exports of other products.
3. "Economic stability in the United States is a matter of vital concern to the other countries of the world." Explain why.
4. "A country which is undergoing domestic inflation is likely to generate a deficit in its balance of payments." Explain why.
5. "Substantial movements of gold and short-term capital from one country are a symptom of disequilibrium in its international balance." Explain why.
6. According to the "purchasing power–parity" theory of foreign-exchange rates, two countries' currencies should exchange for each other in proportion to the price levels of the countries. Explain why this is superficially plausible;

then try to think of some factors which might cause exchange rates to vary from the expected relation to prices. (*Hint:* How might foreign investment and the price of haircuts figure in the analysis?)

7. The following fantasy is quoted from *Mathematics and the Imagination* by Edward Kasner and James Newman (Simon and Schuster, Inc., New York, 1940, p. 162):

> The International Beer-drinking Puzzle
>
> In a certain town lying on the border between Mexico and the United States a peculiar currency situation exists. In Mexico a U.S. dollar is worth only ninety cents of their money, while in the United States the value of the Mexican dollar is only ninety cents of our money. One day a cowhand strolls into a Mexican cantina and orders a ten-cent beer. He pays for it with a Mexican dollar, receiving for change an American dollar, worth just ninety cents there. After drinking his beer, he strolls over the border to an American saloon and orders another. This he pays for with an American dollar receiving a Mexican bill in change. He takes this back across the border and repeats the process, drinking beer merrily all day, and ends up as rich as he started, with a dollar.
>
> The question: Who paid for the beer?
>
> The moral: Visit sunny Mexico on your vacation.

Comment on the foreign-exchange aspects of this situation.

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CHAPTER 13

THE EVOLVING PATTERNS AND PROBLEMS OF INTERNATIONAL FINANCE

INTRODUCTORY

Modern ideas, policies, and institutions of international finance represent the accumulated developments of history. In particular, they reflect the interplay of the "orthodox" theories of trade and finance developed in the nineteenth century with the newer ideas which have emerged from the successive crises attending two world wars, the Great Depression of the 1930s, and the friction between the United States and Russia. This chapter is designed to provide a historical setting to illustrate some of the principles set forth in the previous chapter and to give fuller meaning to current problems and policies of international finance.

International trade and finance have passed through three important stages. The first comprised the period of the gold standard, during which trade was conducted for private profit and subject to very little government control under monetary arrangements which secured convertibility of currencies and stable exchange rates. In the second stage, the unity and freedom of the gold-standard period were shattered by two world wars and the Depression of the 1930s. In the third stage, since 1945, the countries of the free world have sought some new basis for unity and freedom which would avoid some of the shortcomings of the pre-1914 pattern.

THE AGE OF GOLD, 1815–1914

Origins. The period of the Renaissance witnessed a rapid expansion of production and trade. Technical innovations in sailing and navigation opened the way to the colonization of America and to greatly enlarged ocean commerce. In Europe both agriculture and such industries as textile production became increasingly "rationalized" as the profit motive, specialization, and exchange began to replace tradition-directed self-sufficiency. Enterprise was in many respects capitalistic, but it existed in a framework of regulation and control associated with mercantilism. The age was one in which the expansion of enterprise and trade was paralleled by the rise of national states under strong monarchs. Mercantilism was a synthesis of these movements, in which the merchants relied on government assistance for their ventures and monarchs drew political and financial support from the merchants in return. Both interests were commonly served by such devices as import restrictions, grants of monopoly privilege in production or trade, and restrictions on colonial production patterns. The self-sufficiency which was the objective of many such measures was also defended on monetary grounds. The desirability of accumulating gold and silver through a "favorable balance of trade" was an article of faith with many mercantilists. In part this monetary outlook was a logical approach to the needs of government finance in an age of wars and to the problem of avoiding deflation which might arise from the international balance; but the extreme bullionist position was in many cases merely a manifestation of monetary mysticism.

By the eighteenth century, many of the merchants became impatient with the restrictions involved in mercantilism. The crude fallacies of bullionism were more widely discredited—particularly when it dictated policies which impeded profitable trade. The downfall of mercantilism was hastened by the revolutions which followed 1775. France and the United States cast off many bonds of economic control and privilege, and Great Britain was not long in following their example.

The Emergence of Capitalism. The return to peace in Europe after 1815 set the stage for the emergence of capitalism as the dominant form of economic organization in Western society. The age of mercantilism had provided a hothouse in which this growth was protected and promoted, and the Napoleonic Wars had given great stimulus to profit-seeking enterprise in commerce and manufacturing, particularly in Britain and the United States. The Industrial Revolution was in full swing, showing itself in such technical innovations as steam power, superior machinery for spinning and weaving, and improved metallurgy. With these innovations came the social transformations to factory work and urban living. Output expanded at a rapid pace.

The intellectual keynote of the nineteenth century was liberalism in political and economic affairs. Politically, this meant a shift toward representative governments concerned with promoting "the greatest good for the greatest number." Economically, liberalism meant a reduction in the economic role of government and enlargement of freedom of individuals to produce, trade, and invest.

The Supremacy of Great Britain. Great Britain emerged from Waterloo as the dominant nation of the globe and soon became one of the most liberal as well. The British economy surpassed all others in its technical proficiency and productivity, as well as in its acceptance of the market economy as the basis for economic life. Britain soon became the world's leading exporter of capital and the center of international finance and payments. Britain was also the leading maritime nation—her navy ruled the sea, and her merchant marine forged a strong commercial link between home country, empire, and the rest of the trading world.

World Economic Conditions. In the world economy, a number of important economic characteristics took shape at this time. They can be summarized as follows:

1. Production increased enormously, particularly in such consumer goods as food and clothing. The great outpouring of goods was chiefly composed of standardized bulk commodities produced by numerous small enterprises under highly competitive conditions. Prices were flexible and were not dominated by individual producers or collusive groups.
2. The extensive government controls over international trade and finance associated with mercantilism generally gave way to freer trade.
3. The economic role of governments in domestic business life also was not extensive. This limitation of government intervention reflected confidence in the free market, distrust of government, and relative absence of politically powerful special-interest groups seeking privileges.
4. Capitalistic morality with respect to payment of debts and related matters generally prevailed among nations as among merchants. In consequence, there was relative freedom of international capital movements from Europe (especially Britain) to other areas.
5. The nonwhite underdeveloped regions of the world were economically unprogressive and politically inert. Where colonialism and imperialism proceeded, backward cultures were pushed aside (United States) or subjugated (India, Africa). Even where the nonwhite population enjoyed independence and political rights (South America), economic development and prosperity were confined to elite groups of European cultural background.
6. The period was generally one of peace and international order, though minor wars did occur. However, this peace depended more on the supremacy and peaceful inclinations of Britain than on any high degree of international good will or formal machinery for preventing war.

The Gold Standard. On these foundations, there emerged a world economic and financial order based on the gold standard. Great Britain initiated the movement by establishing the pound sterling on a gold basis after Napoleon's defeat. As sterling was the leading medium of international transactions, this act in itself put much of the world on gold.

Many countries retained silver currencies or bimetallic systems until the second half of the century. However, in the 1870s, the high production of silver and its drop in value led most of these to adopt gold. Germany went to gold in 1871, France in 1876, and the United States returned from inconvertible paper to a *de facto* gold standard in 1879.

The gold standard rested fundamentally not on mutual agreements among nations but on voluntary individual adherence to a fairly well understood set of "rules of the game." Each country's monetary unit was established as a given weight of gold, and coinage policies were adjusted accordingly. Changes in these values were not made lightly. Other types of money were kept convertible into gold, and monetary and fiscal policies were adjusted to help maintain convertibility. Loss of gold dictated tight credit and possibly reduction of the money supply to maintain gold parity. Large-scale deficit spending which might inflate the money supply and endanger convertibility was to be avoided.

Gold and International Balance. We have seen that the gold standard performs important functions with respect to exchange rates and the balancing of international payments. Under a gold standard, exchange rates will not vary except within a narrow range determined by the costs of shipping gold, and the gold standard actually required very little gold movement to settle international accounts. Short-term capital movements induced by exchange-rate speculation or interest differentials did most of the work.

The gold standard provided a close link between a country's international balance and its domestic money and credit situation. An international deficit would tend to reduce the money supply of the deficit country and possibly cause a loss of gold from bank reserves. Of course, the surplus country would receive an increase in its money supply and gold reserves. Contemporary economists expected that such movements of money and gold would reduce prices in the deficit country and raise them in the surplus country and that this would restore equilibrium.

Price Flexibility. As a matter of fact, the prices of most internationally traded goods were flexible and did respond to international imbalance. However, these changes were not chiefly attributable to reductions in the money supply but rather to declining demand resulting from lowered incomes. However, in England there developed a closer link between credit conditions and commodity prices. Both import and export staples passed through the hands of middlemen who operated on credit. When interest rates rose, these dealers were under pressure to reduce their inventories and their indebtedness—perhaps by cutting selling prices, perhaps by reducing orders. In either case, price reductions were likely to follow.

For countries exporting chiefly agricultural products, international price movements were often not a stabilizing force. Total demand for such products was generally inelastic. Supplies fluctuated at random with weather conditions but were inelastic with respect to price. Fortunately, climatic variations in various exporting areas often canceled each other out, so that actual price variations were not extreme. This had a definite stabilizing influence on the position of the importing countries, such as Great Britain. In nonagricultural commodities, where random supply variations were less likely, the size and integration of the world market was a force making for stability.

Capital Movements and Credit Policy. One of the most important lubricating mechanisms for trade and payments in the age of gold was the international movement of short-term capital. Import and export trade involved extensive reliance on acceptances and similar short-term credit instruments. Both borrowers and lenders were sensitive to differences in interest rates among the international financial centers—London, Paris, New York, Vienna, etc.

European central banks influenced this flow of credit as a means of protecting their gold reserves. If England was threatened with a loss of gold, the Bank of England would tighten credit and raise its discount rate. This would drive borrowers away and attract lenders into the London money market. As a result, the demand for pounds would be strengthened, the demand for foreign money reduced, and pressure toward gold export possibly eliminated.

Such credit movements, as well as others set off by foreign-exchange speculation, made it possible for operation of the gold standard to minimize actual gold movements. Contemporary observers were always amazed and often shocked by the tiny amount of gold actually held by the Bank of England as reserve for the nation's monetary and credit structure.

Britain's financial system was the nerve center of the world trading community under the gold standard. Sterling bills and deposits served as the principal medium of payment, and the great bulk of trading credit to finance imports and exports was obtained in Britain. Within Britain, there developed an extensive community of specialized, competitive firms dealing with various aspects of foreign trade and finance. At the center of this network was the Bank of England.

During the eighteenth and nineteenth centuries, the Bank of England was essentially a private corporation, but it gradually acquired a sense of public responsibility. During the nineteenth century the Bank came, more through practice than through pronouncement, to serve two functions. First, it was the custodian of the nation's gold reserve. Other commercial banks came increasingly to keep their cash reserves with the Bank. Thus if the demand for gold rose, it would ultimately be drawn from the Bank of England. This custodial relationship was formally recognized in the terms of recharter of the Bank in 1844, under which variations in the Bank's note issue could occur only in response to equal variations in its gold reserves. As we have seen, the Bank played its role as custodian by tightening credit in periods of loss of gold.

The Bank also served as a lender of last resort in periods of crisis. This meant that while it could (and presumably should) raise its discount rate during crises, it should not restrict its willingness to make loans at that rate. Borrowers might be inconvenienced by having to pay high rates, but they would always be able to obtain funds at some price if pressed for liquidity. In the United States, both of these functions were exercised by the Federal Reserve System after 1913.

The Gold Standard and Economic Welfare. The pattern of world economic organization which developed under the aura of the gold standard contained many desirable features. The stability and security of exchange rates, together with relative freedom of trade, vastly enlarged international specialization and exchange. England, which carried this freedom to its extreme degree, also exemplified extreme specialization. The nation became primarily an international middleman, dependent on imported food and raw materials financed by exporting the products of her skill, capital, and ingenuity. British trade volume reflected this specialization: "By 1913 British exports were ten times what they had been in 1840 and more than 30 times greater than in 1770."[1]

Gold-standard conditions also promoted a *multilateral* arrangement of trade and payments. The United States could sell cotton to England and use the proceeds to buy sugar from the West Indies or to pay interest on public securities owned in Switzerland.

Gold-standard conditions were also favorable to a bountiful flow of international capital. By 1913, British investments abroad amounted to over £4 billion, and the nation derived about 10 per cent of its national income from interest and profits on these investments.[2] The rapid industrial growth of the United States was greatly aided by this inflow of foreign capital, particularly into railroads and subsequently into steel and other heavy manufacturing. By 1914, the United States was a net international debtor to the extent of about $4 billion. However, the impact of foreign investment and economic development in the nonwhite colonial areas was much less beneficial. Investment in such areas often did not develop productive skills and experience among the indigenous population or produce an intelligent and eager entrepreneurial and managerial class. The imposition of marginal capitalist operations on static, traditional peasant cultures proved socially disastrous in areas such as India. Population growth and urbanization created seriously unbalanced economies which could not generate increasing economic welfare for their own population.

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[1] J. B. Condliffe, *The Commerce of Nations*, W. W. Norton & Company, Inc., New York, 1950, p. 287.

[2] *Ibid.*, pp. 336–337.

Gold and Instability. The age of gold was notable also as an age of economic instability, insecurity, and social tension. Most of this was, to be sure, not the result of the monetary system itself but arose from rapid increases in population, the movement into cities, and the substitution of factory discipline for agriculture or cottage industry.

One shortcoming of the gold standard was revealed in the latter part of the nineteenth century, when gold production was relatively low. This low production level held to a slow pace the expansion of the money supply in the major industrial countries at a time when output was increasing rapidly. The consequence was a prolonged and painful period of price deflation which worked considerable hardship and set off extensive political repercussions in the United States.

Europe and America passed through several major economic depressions—one just after Waterloo, another in the 1840s, and a third in the 1870s. Major causes were wartime dislocations and unstable patterns of private capital investment. Much investment was highly risky and sensitive to variations in psychological expectations as well as objective circumstances.

The gold standard tended to transmit and augment these unstable movements both internationally and within individual countries. Domestically, boom periods often gave way to panic when distrust of banks led to increased demand for gold for hoarding. Internationally, recession in one major country would tend to spread by inflicting payments deficits on its trading partners. The process was particularly burdensome for countries such as the United States whose exports were agricultural staples and who were heavy capital importers. Every major depression through which the United States passed in the nineteenth century involved both reduced export sales and declining inflow of foreign capital (which reduced domestic investment spending).

However, with flexible prices (and wage rates) the effects of instability on production and employment were less serious than they were to become in the twentieth century. And it is a remarkable fact that while the period from 1815 to 1914 was one of considerable fluctuation in world prices, the long-run trend of prices was very stable. In the end, it was the apparent tendency for the gold standard to sacrifice domestic economic stability to the maintenance of gold parity and convertibility which brought its downfall; but this abandonment came only after the extraordinary crises associated with war and economic upheaval after 1914.

By 1914 the principles that dominated the age of gold were put on the defensive. Nations newly risen to international prominence, such as Germany and the United States, were committed to tariff protection rather than to free trade. The relative tranquillity of international relations had been disrupted by the colonial expansion and military posturing of imperial Germany. The era of British supremacy was over. There were strong pressures within the major countries to replace laissez-faire government with more active intervention in economic life. The degree of price flexibility was reduced by the growth of giant firms, collusive cartels, and labor unions. These influences were not sufficient to overthrow the world unity of the gold standard before 1914, but they provided strong barriers against its successful reconstruction after 1918.

WORLD WAR I AND RECONSTRUCTION EFFORTS, 1914–1929

The War. World War I and its aftermath completely shattered the economic unity of the prewar world, just as it destroyed the political basis of European society. In both the economic and political spheres, events in the years since 1914 have been shaped by a groping for some new basis of international order.

World War I was for Europe the first modern "total war." Its enormity was not faintly foreseen when it began, but ultimately it became, in terms of injury, loss of life, and human suffering, the costliest war of any in history. Belligerent countries expended vast quantities of valuable resources and had even more valuable ones destroyed. Loss of manpower from the most vigorous and creative age and social groups proved a long-standing affliction to Britain, France, Germany, and Russia.

Throughout the world, production and employment were expanded greatly. Nonbelligerents enlarged their capacity to produce industrial and agricultural products, either to sell profitably abroad or to replace goods formerly imported from the belligerent nations. These enlargements permanently altered the pattern of world production. Financial relations among nations were also greatly altered to purchase needed goods. The European countries sold foreign assets and borrowed abroad

—including $10 billion of war loans from the United States government. By 1918, the United States emerged from its long-standing debtor status to that of a major international creditor.

The internal finances of the belligerent countries were greatly strained. Without exception they resorted to heavy deficit financing, based on credit expansion by central and commercial banks. Gold convertibility was suspended. Supplies of currency and deposits expanded greatly, and price levels rose substantially.

Finally, the war created an atmosphere of international animosity and hatred throughout Europe. Public opinion in each belligerent nation was whipped up by propaganda to a fever pitch of emotion. More than any other factor, these hostile attitudes among national groups shaped the postwar period in a manner which made peace impossible.

Postwar Period: Eastern Europe in Chaos. Although the war on the Western front ended in November, 1918, the years after 1918 were a period of continued violent upheaval in Eastern Europe, erupting in national reorganizations, social revolutions, and continued outright warfare. The great imperial powers which had ruled Germany, Austria-Hungary, and Russia were all overthrown. Two powerful forces operated in the space they left—social revolution and nationalist revolution. The first involved efforts to substitute democratic and relatively socialistic political and economic policies and institutions for the old feudal-aristocratic pattern. The second entailed breaking up the old empires into smaller states dominated by formerly submerged national groups. These forces kept the entire area in chaos. The newly created states in Eastern Europe were politically weak and divided by boundaries which bore no relation to existing patterns of production and exchange. Economic and ethnic nationalism soon erupted in local wars, boundary disputes, tariffs, and trade restrictions.

The wreck of national economies east of the Rhine was reflected in one searing experience shared by most of the area—hyperinflation. We have already described how the German price level skyrocketed a trillionfold by 1923. Similar experiences were suffered in Russia, Poland, Austria, and Hungary. Details differed, but all had in common vast government expenditures for reparations, reconstruction, or continued hostilities, administrative breakdown of tax systems, and political weakness of government. Currency and bank deposits expanded astronomically. Money and prices ceased to function as adequate guides to economic life. Production and distribution were thoroughly disrupted.

Allied Policies. The Allied powers contributed to the postwar calamity in two ways—through their policies toward the defeated areas and through management of their own imports and monetary and foreign-exchange systems.

The dominant attitude of the Allies toward Germany was one of revenge, and the instrument of vengeance was reparations. Germany was compelled to relinquish real capital goods, raw materials, and border territories. More important, a crushing burden of monetary reparations, totaling about $32 billion payable in gold, was imposed.

Germany, not a gold producer, could obtain gold only by international purchase, which ultimately required either an export surplus or foreign loans. Import restrictions by the Allies, particularly the United States, made the first alternative difficult, and the deteriorating condition of the mark militated against the second. Lacking foreign exchange from exports or credit, Germany resorted to government deficits financed by bank credit to buy gold. This process inflated the money supply and raised prices—including the price of gold. Collapse of the mark followed the French invasion of the Ruhr in 1923.

Faced with economic ruin, the German government finally braced itself to halt the catastrophe. A new currency was created; the government deficits and credit expansion were brought to a halt. French troops were withdrawn. In 1924, under the Dawes plan, the annual burden of reparations was scaled down, and Germany secured loans abroad. Domestically and internationally the German economy was restored to stability, if not tranquillity. However, the Versailles treaty and the inflation had aroused social tension and discontent in Germany which would simmer down only if prosperity and stability were maintained for a long time. And Germany's international balance after 1925 rested precariously on a flow of private loan funds from the United States. These loans provided the foreign exchange for reparations payments to Britain and France, who used the proceeds in turn to make payments on their war debts to the United States. Prosperity and stability hinged on the continuation of this flow.

American Policies. By the end of the war, its creditor status and productivity placed the United States in a position of prominence in the international economy to which it was unaccustomed. Unfortunately the responsibilities which this economic power brought with it were not well executed.

Poor monetary and fiscal policies contributed to a rapid speculative inflation in 1919 and 1920, followed by a sharp depression in 1921 and 1922. The consequent reduction in imports and foreign lending unbalanced European payments at a critical time. A major consequence of this depression was the world-wide collapse of agricultural prices. Domestically, the farm depression created the chronic demand for "parity" and undermined the solvency of a large portion of the banking system. Other agricultural countries were also injured, with drastic results for living conditions and political stability. In the new nations of

Central Europe, for instance, the price collapse enhanced demands for nationalistic trade policies and undermined many shaky democratic political regimes.

The United States reacted to the recession by passing the highly protective Fordney-McCumber Tariff in 1922. This act increased the export problems faced by Germany and other nations in trying to meet their debt and reparations obligations. The government did, to its credit, waive claim to direct German reparations but insisted on strict fulfillment of the war debts from the Allied and succession states. This insistence led the Allies in turn to keep pressure on Germany for reparations.

International Cooperation. United States policies were merely one example of the general failure to develop a pattern of international cooperation combining good will with an understanding of the mechanics of economic affairs. In the years before 1914, international stability rested on balance-of-power diplomacy and the voluntary adherence to the rules of the gold standard. Little formal cooperation was needed. After 1918, these foundations were destroyed. The League of Nations represented an effort to find an organizational framework to replace them—an effort in which the United States declined to participate. Because the League presupposed the division of Europe into a large number of national states, in the general economic, military, and moral anarchy which afflicted European thinking, the very nature of the League rendered it nearly impotent.

The League provided useful aid in stabilizing the currencies of nations suffering from inflation. Leading countries such as France and Britain were induced to act as guarantors for loans to Austria, Poland, Germany, and others. Central banks, particularly the Bank of England, provided stabilization credits to aid the monetary reconstruction of Eastern Europe. In 1924 an international committee of financial experts produced the Dawes Plan for German reparations. In subsequent years, cooperation among central banks provided one ray of hope that a pattern of international monetary order might be sustained. However, elected political leaders did not share this willingness to cooperate nor realize the vital need for such cooperation.

Back to Gold. There was little disagreement among authorities in power that national currencies should be returned to a gold basis and that gold values should approximate those of the prewar period. Because the delicate institutional basis of the pre-1914 system had been so largely a private and decentralized system, there was little understanding in official circles of the very exacting conditions required for its success or of the alarming degree to which those conditions had been destroyed.

At any rate, one by one the European nations straggled back to gold, each making its own decision about the proper value for its currency and the precise form of its relation to gold. For the countries which had suffered hyperinflation, the return to gold was one element in the general monetary reconstruction. It was welcomed by the distraught populations as a safeguard against further monetary disorder.

In Britain, Winston Churchill, as Chancellor of the Exchequer, led the restoration of the pound to its prewar gold value. Such a policy had two major disadvantages. Since prices in Britain had risen greatly, restoring the old exchange rate made British goods expensive to foreign buyers and foreign products cheap for Britons. The result was a chronic tendency toward an import surplus. Before 1914 such a surplus was normal and was financed by the flow of investment income to Britain, but that flow was now greatly reduced.

The second difficulty (common to many countries) was that the money supply was much larger in relation to the gold reserve than it had been before 1914. The British attempted to "economize" on gold by shifting to a bullion standard—gold coins were no longer issued, but the government would buy and sell gold bullion at the mint par.

Despite these difficulties, the pound was restored to its old parity with the hope of maintaining or restoring England's position as an international financial center. To devalue the pound would have reduced the value of the vast sums of international balances held in sterling and would, the British financial authorities feared, forever undermine confidence in sterling as a store of value.

As soon as the pound returned to gold, the overvaluation exerted its pressure on the British balance of payments. To reduce the tendency toward excessive imports, the government maintained deflationary monetary and fiscal policies. These measures kept the international account under control, but production and investment stagnated, and unemployment stayed chronically at a depression level. Employers tried to force wage costs down, but this created bitter class animosity, reflected in the general strike of 1926 and in the increased political strength of the Labor party.

By contrast, the French, after a decade of inflation, restored the franc to gold at a valuation only one-fifth as great as before 1914—a valuation which attracted gold.

The Gold-exchange Standard. Most other countries, like Great Britain, felt pressed to economize on gold. Most of them ceased to issue gold coins. In addition, many of them came to use for their central bank reserves not gold itself but foreign-exchange assets convertible into gold—chiefly deposits in New York and London banks. The authorities of each gold-exchange country undertook to maintain their currency at par with gold by means of purchases and sales of foreign-exchange drafts. They could meet international deficits by drawing on their balance in, say, London to pay creditors. This gold-exchange arrangement tended to pyramid heavy liabilities on a limited gold reserve. Great Britain's position as international banker was rendered extremely vulnerable by the fact that a large portion of its liabilities to foreigners were of this sort and were heaped on a thin gold reserve. When creditors demanded gold to hoard instead of deposits to spend, the system was doomed.

At the same time, many of the devices by which international payments had been settled without gold no longer functioned as well as before 1914. Stabilizing movements of short-term capital responding to exchange-rate or interest-rate variations had pretty well vanished as a result of the chaotic state of exchange rates prior to 1926. Instead, most foreign short-term balances became sensitized to react perversely. Evidence that a currency was under selling pressure might set off a flight from it.

Nevertheless, the return to some kind of gold standard did restore considerable order to foreign-exchange rates. Figure 13-1 shows the behavior of the dollar values of some major European currencies in the 1920s.

These data show the influence of the inflations suffered by various countries in the early 1920s. There tended to be a rough equivalence between the decline in a currency's exchange value and the decline in its domestic purchasing power as prices rose. Internal inflationary pressure would commonly raise the international supply of the currency and thus drive its exchange value down. The exchange value might fall less than the domestic value if speculators were willing to hold the currency (as happened with the German mark in 1920–1921); but the exchange rate might fall faster if the currency were subject to capital flight, as happened in France in early 1926.

The contrast between the rate stability of the late 1920s and the chaotic fluctuations of the previous period is quite evident from the chart.

Prosperity, 1925–1929. As conservative financial leaders had predicted, the period of gold restoration was one of general prosperity in Europe and the United States (though not in Britain). Capital investment needs after a long period of war and disorder were sufficient to support high incomes and employment levels, even at relatively high interest rates. Capital formation, technological development, and the return to the market economy stimulated high output. The volume of world trade returned to high levels.

However, the pattern of resource allocation was in many areas not appropriate to the postwar situation. World-wide excess capacity had developed in agriculture and textiles, and it was sustained after the war by tariffs and subsidies in many countries. The European countries which had lost colonies and foreign investments needed to devote more resources to exports if their imports were to be maintained, while the new creditor nations, such as the United States, needed to import more if their exports were to stay high. Both the latter necessities were put off by the large flow of private loans from the United States. From 1920 through 1931, Americans invested about $12 billion abroad, chiefly through portfolio investments in European securities.[3]

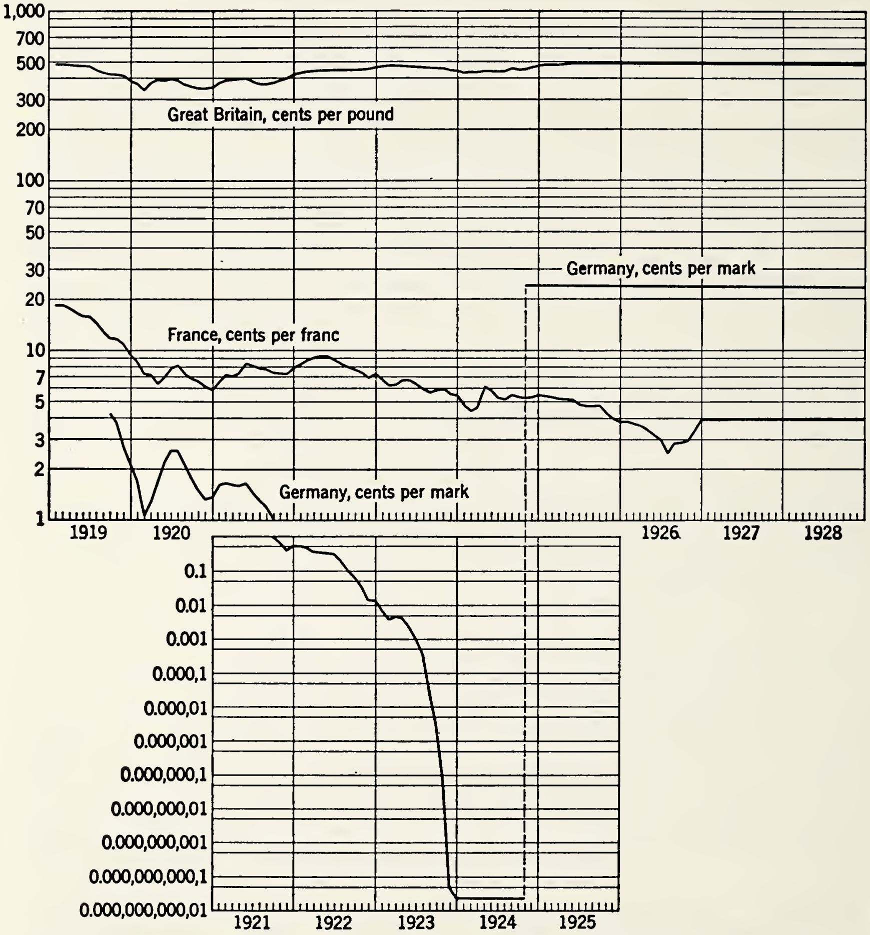

FIG. 13-1. Major dollar-exchange rates, 1919–1928. "Free" rates used where available. (*Monetary and Banking Statistics.*)

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[3] *Ibid.*, pp. 446–447.

THE COLLAPSE OF THE INTERNATIONAL ECONOMY, 1929–1939

Initial Downswing, 1929–1931. The stock-market boom which gripped the United States in the late 1920s eventually impaired the flow of credit abroad. American investors preferred to speculate in stocks rather than buy imported bonds. As the boom progressed, foreign funds were drawn in for speculation. Consequently, the American capital outflow began to dwindle in 1928. When stocks crashed in 1929, the pressure of financial liquidation spread to bonds and other credit, particularly as banks and other financial institutions struggled to increase their liquidity.

These capital-account problems were soon supplemented by trouble in the current account. As United States incomes began to fall in mid-1929, import purchases also declined. This was aggravated in 1930 by the passage of the highly protective Smoot-Hawley Tariff. Declining United States payments unbalanced the structure of international payments and imposed drastic deflation on the world in general and on Germany in particular. One-third of German industrial output was exported, while much domestic capital expenditure depended on foreign capital inflow. By 1930, when most of the world was in a mild recession, the German economy was seriously depressed, with more than 10 per cent of the labor force unemployed. As a consequence, electoral support for Nazi and Communist political candidates increased alarmingly.

Throughout Europe governments of every political coloration vigorously pursued the orthodox policies dictated by the gold-standard dogma. In Britain a Labor government eager to prove its soundness and reliability was prepared to cut unemployment benefits in order to reduce the government deficit and hold the pound on gold. In fascist Italy, Mussolini's government also pursued deflationary policies which threw the supposedly regulated economy of the corporate state into serious depression and unemployment. In Germany, the conservative government of Brüning pursued deflation with a vengeance. The Germans had a pathological fear that a deterioration of the international value of the mark would herald a repetition of the inflation nightmare of the early 1920s. In addition, the government hoped (with some justification) that lower prices and costs in Germany would help sustain exports; but deflation aggravated social tension and encouraged political extremism.

Financial Panic, 1930–1931. The financial structure of the gold-exchange standard was too weak to survive the disequilibrium pressures. Experience with hyperinflation and exchange instability had weakened confidence in the value and convertibility of currencies just when the pyramiding of liabilities on a thin gold reserve rendered such confidence indispensable.

However, for a time it appeared that international financial cooperation might stave off panic. Under the Young Plan for German reparations, a Bank for International Settlements (BIS) was established at Basel, Switzerland, in 1930. It was designed as a "central-bankers' central bank," holding deposits for individual central banks and making international transfers for them. During the panic, it assumed an important role in bringing financial aid to distressed central banks.

In May, 1931, serious financial panic burst forth in Vienna when the Credit-Anstalt, a prominent bank, suspended cash payments. To stem the panic, the Austrian government assumed some of its liabilities and received loans from the Bank of England and the BIS. But the panic spread through Europe as individuals and financial institutions tried frantically to collect their short-term claims. In June, President Hoover granted a moratorium on war-debt payments, and a corresponding stay was extended for German reparations payments. Germany was losing gold rapidly and, despite emergency loans from foreign central banks and BIS, discarded convertibility of the mark by imposing exchange controls in July. In September, a "standstill agreement" with foreign creditors temporarily suspended payments on short-term claims against Germany.

Next the pressure spread to England, as Continental financial institutions scrambled to withdraw their funds for self-defense. The Bank of England received emergency foreign loans, but in September, 1931, gold payments were stopped and the pound went off gold. Soon after, the British imposed a protective tariff after nearly a century of free trade.

After similar financial crises, nearly all countries in Eastern Europe suspended gold payments, and many adopted exchange controls. The United States was subjected to large withdrawals, exceeding half a billion dollars in October, 1931. Although this depleted the gold stock by only one-fifth, it led to an increase in the Federal Reserve discount rate which many critics felt was unfortunate.

Going off the gold standard was for most countries not a catastrophe but a relief. In Britain (and in the United States after 1933), going off gold heralded a more expansionary monetary and fiscal policy aimed at domestic recovery.

Down to the Depths, 1932–1933. The real crisis of the world economy lay in the steady decline of production, employment, incomes, and price levels after 1929. Consumer incomes fell, dragging down consumer spending. Business investment declined as markets shrank, thereby reducing incomes more and shrinking markets further. The fall of industrial production raised unemployment in the United States to one-fourth and in Germany to one-third of the labor force. Agricultural prices collapsed as declining incomes and trade restrictions cut demand while supply remained high. This brought debt crises, defaults, and foreclosures for producers and insolvency for financial institutions. Agricultural exporting nations underwent serious foreign-exchange crises—thus Argentina and Australia were among the first nations to go off gold. Foreign debts which could only be serviced with the proceeds of exports fell into default. Lower incomes, lower prices, and trade barriers reduced the value of world trade from $37 billion in 1929 to $14 billion in 1932.[4]

Social tensions and unrest produced violent political and diplomatic upheavals. The most notable of these brought Adolf Hitler to power in Germany in January, 1933. Dictatorships were established or strengthened in Austria, Hungary, Poland, Bulgaria, Rumania, and Greece. Depression helped spur Mussolini to invade Ethiopia and created the class warfare and anarchy which generated the Spanish Civil War.

Further Devaluations. In the United States, the Republicans were swept from office by the landslide victory of Franklin Roosevelt. The country was being wracked by a renewed monetary panic, as the public withdrew gold and currency from the tottering banks. Immediately upon his inauguration in March, 1933, Mr. Roosevelt closed the banks and suspended gold convertibility of the dollar. Gradually the banks reopened, and in 1934 a new gold-bullion standard was established. The price of gold was raised from $20.67 to $35 an ounce, in the vain hope that it would cause commodity prices to rise. This made the dollar much cheaper internationally and foreign currencies relatively more expensive—for instance, the pound went above $5. This devaluation tended to weaken the European balance of payments. As one consequence, France devalued the franc in 1936.

Exchange-rate chaos now replaced the stability of the late 1920s. The cutting of rates had the appearance of a price war, in which each country reduced the cost of its currency in the hope of selling more and buying less. Such efforts to gain at the expense of other countries are called "beggar-my-neighbor" policies. Had all the major trading countries undertaken a uniform devaluation early in the Depression, the liquidity crisis might have been solved without this cutthroat competition. The American action typified the lack of international coordination, for it was undertaken unilaterally at a time when an international conference at London was seeking some cooperative approach. Fortunately, American policies improved subsequently. In 1934 the Reciprocal Trade Agreements program was initiated, leading to gradual reduction of American tariffs. In the same year, Congress created the Export-Import Bank to furnish credit for American international transactions.

[4] *Ibid.*, p. 450.

After the French devaluation in 1936, the United States and Britain joined her in the Tripartite Declaration, agreeing to refrain from further competitive devaluations.

The movement of dollar exchange rates of major currencies is shown in Figure 13-2. This shows with particular emphasis the effect on other countries of the American devaluation.

Thus the coming of the Depression pulled down the shaky structure of the postwar gold standard, which in collapsing worsened the financial panic and depression. The experience proved that the international payments system required balanced flows of goods and investment and that it could work only so long as gold itself was not heavily in demand.

Exchange Controls and Trade Restrictions. Many countries imposed high tariffs, import quotas, or exchange controls either for defensive purposes, to stem deflation, or as an attempt to exert a positive influence toward recovery. In Germany, exchange controls were initiated in 1931 to halt capital flight, control settlement of short-term foreign debts, and protect the mark against foreign-exchange depreciation. By 1933 the controls came to be used as a technique of export subsidy, whereby various categories of "blocked" marks sold internationally at a discount. Later, exchange controls and bilateral trade and payments agreements became a technique for buying imports on credit and practicing monopolistic price discrimination in exports.

When Great Britain went off gold in 1931, she did not establish foreign-exchange control. The pound remained directly convertible into other currencies, and the British government maintained rate stability by use of an exchange stabilization fund, by means of which foreign currencies were bought and sold in the open market. Net balances were settled by the authorities and might involve gold shipments as well as credit. However, the basis for the sterling-area trade group was established by the British tariff, which provided preferential rates for other Commonwealth countries, and by a series of bilateral trading agreements with other countries. These agreements were designed to enable both parties to raise imports and exports without fear of a trade deficit.

Although world production and employment improved after 1933, the world economy was increasingly poisoned by deterioration in the political and diplomatic atmosphere. Japan and China were already at war. In 1935 the Italians invaded Ethiopia, and the following year civil war broke out in Spain. Germany's trade penetrations into Eastern Europe were succeeded by the actual territorial annexations of Austria and Czechoslovakia and by the invasion of Poland, which set off World War II.

In consequence of heightened animosity and tightened trade controls, the volume of international economic transactions dwindled. By 1938 the proportion of national output exported by Britain, France, and Germany was about half of what it had been ten years earlier.[5] The character of trade had shifted from the pursuit of long-run comparative advantage in the allocation of resources to the short-run pursuit of full employment and military and diplomatic power.

International capital transactions also dwindled and deteriorated. Long-term capital outflow from the United States, so large in the 1920s, fell below the inflow of repayments in the 1930s. International debt relations were complicated by outright defaults and repudiation and by exchange controls and standstill agreements. Germany ceased to pay reparations, and the major European nations stopped payments on their war debts to the United States.

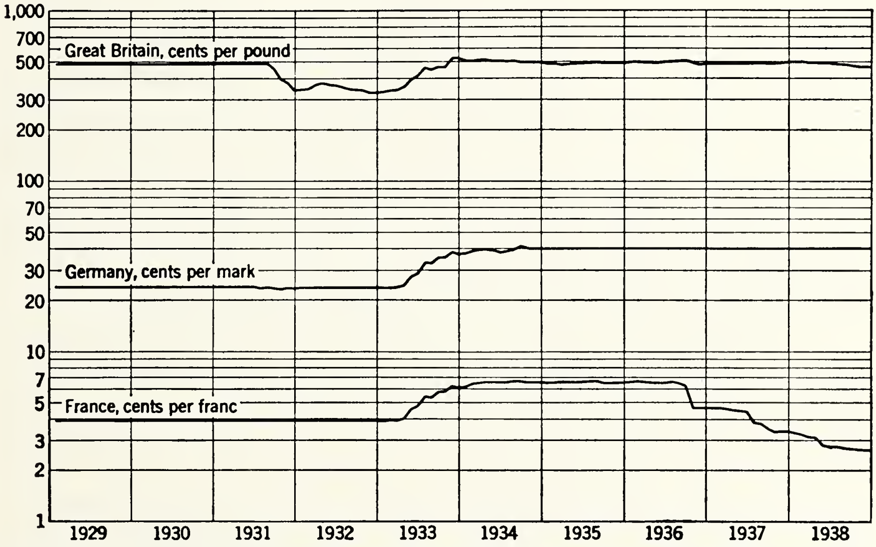

FIG. 13-2. Major dollar-exchange rates, 1929–1938. (*Monetary and Banking Statistics.*)

Thus the pattern of trade and payments in the 1930s had a distorted and artificial character. In international payments, considerable freedom remained because the United States and Great Britain did not impose exchange controls. However, most other major trading countries restricted the freedom of their residents to use and transfer these and other foreign-exchange media. Most countries maintained relatively stable exchange rates in the late 1930s, but these were partly imaginary "official" rates or were sustained by administrative restrictions rather than on a free-market balance of demand and supply. The United States was, indeed, still on a gold standard, although domestic gold hoarding was not permitted. Under the combined impact of the increased price of gold and the social and political upheavals in Europe, gold flowed in a steady stream into the United States from 1934 on. In the period 1934–1940, gold imports totaled about $16 billion, as compared with world production of about $8 billion. The one-way journey of this costly treasure into the ground symbolized its decay as an active instrument of international exchanges.[6]

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[5] Stephen Enke and Virgil Salera, *International Economics*, 3d ed., Prentice-Hall, Inc., Englewood Cliffs, N.J., 1957, p. 338.

THE SECOND WORLD WAR AND RECONSTRUCTION, 1939–1949

Impact of War. Although World War II was a far-reaching influence in the control and demoralization of economic patterns, it came after a long experience with both control and demoralization. The war brought many of the same consequences as its predecessor—destruction of productive resources, shifts in the pattern of world production and specialization, inflation, and the release of nationalistic and revolutionary forces. In addition, it accelerated the shift in world power away from Western Europe toward the United States and Russia.

For many nations, such as the United States, the war brought final complete recovery from the Depression. As a result, world production increased vastly. International transactions increased in volume but were determined by military and strategic considerations. Controls over private trading and payments were extended.

As during the first World War, important European economic problems centered around the loss or deterioration of resources, the disorganization of economic life, the loss of external assets, both financial and territorial, and monetary inflation. As much as 20 per cent of Europe's capital goods were worn out or destroyed between 1939 and 1945. Labor forces declined in quantity and quality. Economic relations were disrupted by internal controls and by shifts in political sovereignty. Heavy liquidation of foreign assets reduced future income from such investments. As an extreme example, Britain's net international-asset position declined by about $16 billion from 1939 to 1945.[7]

[6] A good indication of the changed status of gold in United States policy is found in the attitudes toward Federal Reserve gold reserve requirements. After World War I, decline in the gold reserve ratio led to a policy of credit restraint and deflation. In 1945 when the ratio again fell close to the legal minimum, Congress merely lowered the minimum!

[7] Charles P. Kindleberger, *International Economics,* 1st ed., Richard D. Irwin, Inc., Homewood, Ill., 1953, pp. 474–477.

Inflation. The problem of monetary inflation was pervasive, although it took different forms in different areas. All belligerent countries relied heavily on the traditional techniques of war finance—large-scale government deficits financed in part by bank credit. Further, some countries occupied by enemy forces (Belgium, Norway, the Philippines) had their currencies forcibly inflated by the occupation powers. By the end of the war the public held large amounts of cash and government securities. Some countries, notably Britain and Germany, imposed such tight controls over wages, prices, and foreign-exchange dealings that the inflationary pressures were not allowed to raise the price level. However, this required extensive programs of rationing to deal with the excess demand for goods at the fixed prices. In other countries, price levels soared to the verge of hyperinflation. In France, prices were by 1947 ten times as high as in 1938. In Italy they had risen more than 40-fold, and in Greece almost 200-fold.[8]

Neither controls nor rapidly rising prices permitted the domestic price system to function constructively. Both types of inflation created pressure toward international payments deficits. Where excess demand was open, it inevitably went in part to buy imports, while the high prices of exports inhibited their sale. Even where inflation was repressed by controls, excessive domestic demand drew resources away from export production. Further, the general lack of confidence in currencies as stores of value created pressure toward capital flight.

Drastic measures of monetary reform were undertaken in many countries to mop up the existing excess liquidity and to prevent further accumulation. Most of these reforms undertaken in Western Europe in 1944–1945 involved temporary blocking of cash and deposits—freezing them in accounts which could not be spent until later. In some cases, new currency forms were issued for the old, in the hope that currency held by foreigners or black-market operators would not be converted. In some cases, blocked funds were not released for several years, and in a few instances they were canceled altogether. In Russia and the Iron Curtain countries (as well as Greece) much more drastic reforms were instituted. Hungary issued one unit of new currency for every 200 million old ones turned in!

For Western Europe, these reform measures did not eliminate the problem of inflation. Some countries (Britain, Sweden) did not undertake them at all; while in others, such as Belgium and France, continued government deficits restored the inflationary pressure. In Germany, controls and excess liquidity kept the economy prostrate until subsequent reform, which we shall discuss below. Outside Europe, a hyperinflation of classic proportions raged in China and added to the chaos in which the Communists successfully gained power.[9]

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[8] Robert Triffin, *Europe and the Money Muddle,* Yale University Press, New Haven, Conn., 1957, pp. 53–70.

Planning for Reconstruction. Before the war ended, Allied leaders had given much thought to the economic and social problems to come. In this thinking they were guided constructively by the lessons of the past and were able to avoid many of the mistakes of the 1920s. This was notably true with respect to the generosity of American aid, the attitude toward the defeated countries, and the effectiveness of European cooperation. During the war, the United States furnished nearly $40 billion (net) of lend-lease aid that entailed very slight repayment obligations for her allies. When the war ended, additional reconstruction aid was extended. About $5 billion of this came through continued lend-lease and contributions to the United Nations Relief and Rehabilitation Agency. Another $5 billion was extended on long-term loan to Britain and France in 1946. These and other acts of assistance were reflected in the United States export surplus of $15 billion in 1946–1947.

Wartime reconstruction planning also stressed the need for improved mechanisms for international cooperation. To meet this necessity, the United Nations Organization came into formal existence in 1945. Beside its primary purpose of maintaining collective security against future wars, the United Nations took over or created agencies for international cooperation and technical assistance in such areas as health and agriculture. Economically, reconstruction planning stressed the need for a system of international trade and payments capable of achieving high world productivity but consistent with the maintenance of domestic full employment and economic stability. At an international financial conference at Bretton Woods, New Hampshire, in 1944, representatives of forty-four governments drew up plans for two institutions designed to meet this need—the International Monetary Fund and the International Bank for Reconstruction and Development.

The International Monetary Fund. The International Monetary Fund (IMF) agreement and organization were designed to avoid repetition of the international financial chaos of the 1930s. By making available short-term loans of foreign exchange to countries experiencing international payments deficits, the Fund was expected to enable such countries to resist depressions originating outside their borders without resorting to exchange control or devaluation. As secondary goals, the Fund agreement was to seek reduction of existing exchange controls and bring member countries closer to convertible currencies with stable exchange rates. The Fund agreement was ratified from the start by the United States, Britain, and other major Allied trading countries; since then it has admitted Germany and Japan, and by 1959 embraced more than fifty countries. The major nonmembers consisted of the Soviet bloc.

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[9] On the European situation, cf. John G. Gurley, "Excess Liquidity and European Monetary Reforms, 1944–1952," *American Economic Review*, March, 1953, pp. 76–100. On China, Chang Kia-Ngau, *The Inflationary Spiral: The Experience in China, 1939–1950*, John Wiley & Sons, Inc. (Technology Press Books in the Social Sciences), New York, 1958.

Technically, the loan operations of the Fund consist of selling foreign currencies. Each member must contribute to the capital of the Fund a sum reflecting its size and economic importance. While a portion of this must be in gold, the bulk is in its home currency, commonly in the form of bank deposits. The United States provided 34 per cent and Great Britain 16 per cent of the initial capital. In compensation, voting power in Fund decisions is roughly proportional to size of national quota.

Sales of foreign currencies from this pool may be made to any member nation suffering a payments deficit on current (not capital) account, provided it deposits an equal par value of its own currency plus a small premium. Each country's right to buy in this manner is limited in proportion to its quota of the Fund's capital. Further, repayment is mandatory for sums beyond 25 per cent of the borrower's quota, and interest is charged on such funds. Finally, the Fund may make access to its funds contingent on compliance by the applicant with recommendations concerning exchange-rate or domestic financial policies.

The responsibilities of member countries with respect to exchange rates were threefold:

1. Countries established initial par values for their currencies, most of which were put into effect for Fund operations in 1946. Many critics thought this a hasty action.

2. Countries were bound by the Fund agreement to make no devaluation of more than 10 per cent from the initial par values without consent of the Fund. Such devaluation would be permitted only to meet a "fundamental disequilibrium" in the petitioner's international balance. Though fundamental disequilibrium was not defined in detail, the implication was that it did not mean cyclical or other maladjustment of a temporary sort.

3. Each member country was obliged to maintain exchange-rate stability between its currency and gold or the dollar, either through appropriate gold points or through exchange stabilization activities by the monetary authorities. Rates were not to diverge by more than 1 per cent from par.

In regard to exchange controls, the member countries agreed in principle to maintain convertibility of their currencies. However, this commitment was weakened by several loopholes. Members were entitled to retain exchange restrictions during the "transition" period immediately following the war and were permitted (almost encouraged) to impose exchange controls over capital transactions.

On the basis of its first decade of operations, there was considerable feeling that the Fund's actual performance had been disappointing. Its lending operations were on a limited scale, and it had not taken a very aggressive role in pushing member countries toward exchange liberalization. These shortcomings could be excused in part by the limitations inherent in the relatively small initial quotas—the United States originally subscribed $2.8 billion. Also, the large volume of American foreign aid reduced the urgent need for Fund lending. However, the Fund's position on exchange rates and controls was less defensible. It was probably overly hasty in getting initial exchange rates set in 1946 but subsequently appeared unduly tolerant of unwholesome multiple-exchange-rate systems not consistent with the Fund agreement. The Fund never succeeded in encouraging a multilateral swapping of concessions comparable to the results achieved by GATT or the European Payments Union.[10]

Much of this disappointing record can be attributed to the fact that, for the industrialized world, postwar payments problems were not those for which the Fund was designed. Payments deficits originated more often from inflationary pressure in the deficit countries than from depressions elsewhere.

By 1959, however, there were definite signs of improvement in the status and functioning of the Fund. Major European countries had moved toward attitudes opposing inflation and exchange control, a shift which strengthened the hand of the Fund in dealing with other countries. This increased strength was evident in the expanded role of the Fund in dealing with Latin American countries, where an active lending program was accompanied by vigorous effort to secure more effective measures against inflation and better trade and foreign-exchange policies in individual countries suffering payments deficits. In 1959, member countries agreed to increases in quotas which would bring the total capital of the Fund up to $15 billion. The United States increased its subscription to $4.1 billion. The substantial increase in the Fund's lending power came just as the relaxation of exchange controls in Europe had increased the potential need for its services.

The International Bank. While the emphasis of the IMF was on stability and freedom in international payments, the International Bank for Reconstruction and Development was established to promote long-term international investment. Like the IMF, it commenced with a capital subscribed by its members, totaling about the same as that of the Fund—about $8 billion. However, only one-fifth of this was called for in cash, and only 2 per cent had to be paid in gold or dollars (except for the United States, of course). The 18 per cent paid in local currency could be used only with the consent of the country involved, and the 80 per cent remainder was simply a guarantee fund.

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[10] Triffin, *op. cit.,* pp. 109–138.

At first, permission to lend the local-currency quotas was generally refused (except by the United States). As a result, the Bank's loanable capital consisted chiefly of the United States subscription of $635 million plus $100 million from the gold and dollar subscriptions of all other members. However, the Bank was authorized to raise additional funds by selling bonds. Further, it could guarantee loans made by private investors or act jointly with them in lending. In practice, it has also acted in an advisory capacity to aid borrowers to become eligible for private credit.

Several restrictions were imposed on the Bank's lending activities:

1. The Bank may make or guarantee loans only if funds are not available at reasonable terms through private financing.

2. Loans are to be made for specific individual projects—a dam, a highway. Thus they contrast with IMF loans, which are aimed at covering an adverse balance of payments generally.

3. Although loans may be made to private business concerns, the government of the borrowing country must guarantee the loan.

4. The Bank expects loans to be repaid and is entitled to consider the likelihood of repayment when reviewing an application.

5. The Bank may not borrow money or guarantee private loans without the consent of the country where funds are being obtained. However, the Bank cannot insist that loan proceeds be spent in any particular country.

The Bank commenced operations in 1946 and made its first loans in 1947. About half a billion dollars were lent to European countries for reconstruction purposes, but since 1948 its loans have been essentially for development and have gone chiefly to underdeveloped countries outside Europe. Its gross volume of lending has been small—slightly over $3 billion actually disbursed through 1958, of which $2.6 billion remained to be repaid. About one-third of the total went to Continental Western Europe, another third to the sterling area, and the rest to Asia and Latin America. Besides its capital, the Bank had $1.8 billion of bonds outstanding in December, 1958. Its credit standing was high, and it was able to issue bonds on favorable terms.[11] The Bank relied only to a limited degree on its guarantee option—through 1958 it had resold $260 million of loans to other investors, and not all of these bore its guarantee.

The importance of the Bank is probably greater than the volume of its loans would indicate. It has played a strategic role in project planning and in encouraging private financing of revenue-yielding projects. Its loans generally only cover the foreign expenditures associated with a project, and further sums derived from local loans or taxation are usually added. Many of the projects it has financed are of a sort to encourage further private investment—power and transport facilities, for instance. And its influence has been exerted to improve the creditworthiness of borrowers. Most observers feel that the Bank has become a valuable institution of international finance.[12]

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[11] *Federal Reserve Bulletin,* February, 1959, p. 232.

Crisis of 1947 and the Marshall Plan. Despite the efforts devoted to it, the postwar reconstruction policy encountered numerous difficulties. United States aid, although generous, tapered off rapidly. Efforts to secure increased freedom of payments led to the fiasco of the British loan. The British agreed, in receiving their loan from the United States, to restore convertibility of the pound for nonresidents. Unfortunately, Britain was suffering a heavy current-account deficit, and British gold and dollar holdings declined alarmingly. Convertibility, established in July, 1947, was suspended a month later.

On the European continent, postwar recovery was unexpectedly complicated by the aggressive and intransigent policy of Russia. At the war's end, Russian troops moved rapidly into the entire area of Central Europe, overrunning East Germany and Austria as well as prewar Poland, Rumania, Hungary, and Bulgaria. In 1948 internal subversion and external pressure brought Czechoslovakia behind the Iron Curtain. It was then apparent that the spread of communism was a threat to Western Europe. Economic recovery had proceeded at a disappointing rate. This was particularly true in Germany, where production and trade were hamstrung by direct controls and excessive monetary liquidity.

Elsewhere in Europe, low living standards and political unrest went hand in hand. In France and Italy, particularly, Communist party voting strength showed alarming power. Production and consumption were well below prewar levels in such areas as Germany, Austria, Greece, Italy, and France, and efforts to obtain more consumer and capital goods by import threw the European payments balance seriously out of line. Exports were one-third below 1938, and invisible earnings from foreign investment had fallen sharply from prewar levels. Despite American aid and although the volume of imports was below the prewar level, Europe incurred an enormous deficit with the rest of the world, reflected in an alarming decline of gold and dollar holdings.

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[12] See Alec Cairncross, "The International Bank for Reconstruction and Development," *Essays in International Finance,* Princeton University, International Finance Section, 1959, no. 33.

To meet this crisis, the United States adopted a massive new program of aid through the Marshall Plan. Soon after came the revitalization of the German economy and the major revisions of exchange rates attending the British devaluation of the pound in 1949. These actions helped enlarge total European production and channel more of it into exports to achieve international balance.

The Marshall Plan, enacted into the European Recovery Program (ERP) in 1948, pursued the dual objectives of restoring European production and living standards and halting the spread of Communist political influence in Europe. Under ERP, the United States provided $12 billion of economic aid over a four-year period. In addition, ERP furnished a stimulus for significant steps toward European cooperation. Recipients of aid formed the Organization for European Economic Cooperation (OEEC), which soon took charge of allocating aid among countries and helping to determine its use. OEEC has served as a source and clearinghouse for information on productivity, technology, and economic development. One of the most important developments under OEEC was the European Payments Union, which we shall discuss in detail later.

Restoration of Germany. The monetary reform and subsequent economic revival of West Germany were among the most spectacular features of European recovery. The German economy was in a chaotic condition in 1945–1947. Productivity had been greatly impaired by destruction, depletion, and disorganization. Although Germany did not suffer spiraling hyperinflation of prices, since controls of wages and prices were rigidly maintained, the volume of money so greatly exceeded the supply of goods available at legal prices that the incentive to earn money income was weakened by inability to spend the money. Speculation and nonmarket production flourished. Reform of these conditions was impeded by the split between Russia and the Western occupying powers.

In 1948, however, the Western powers decided to go ahead without Russian cooperation. A drastic reform of the monetary system was instituted, under which a new Deutsche mark currency was issued for the old reichsmarks. The exchange was not made at par but was operated like a progressive tax—the more marks a person exchanged, the smaller the ratio of new marks received for them. In addition, some of the new marks were in blocked accounts, which could not be spent until later and which in some cases were canceled. At the same time, most direct controls were removed. These policies, combined with Marshall Plan aid, worked a remarkable transformation on the German economy. Inventories of goods which merchants had been holding back were now offered for sale. Incentives to undertake productive activity

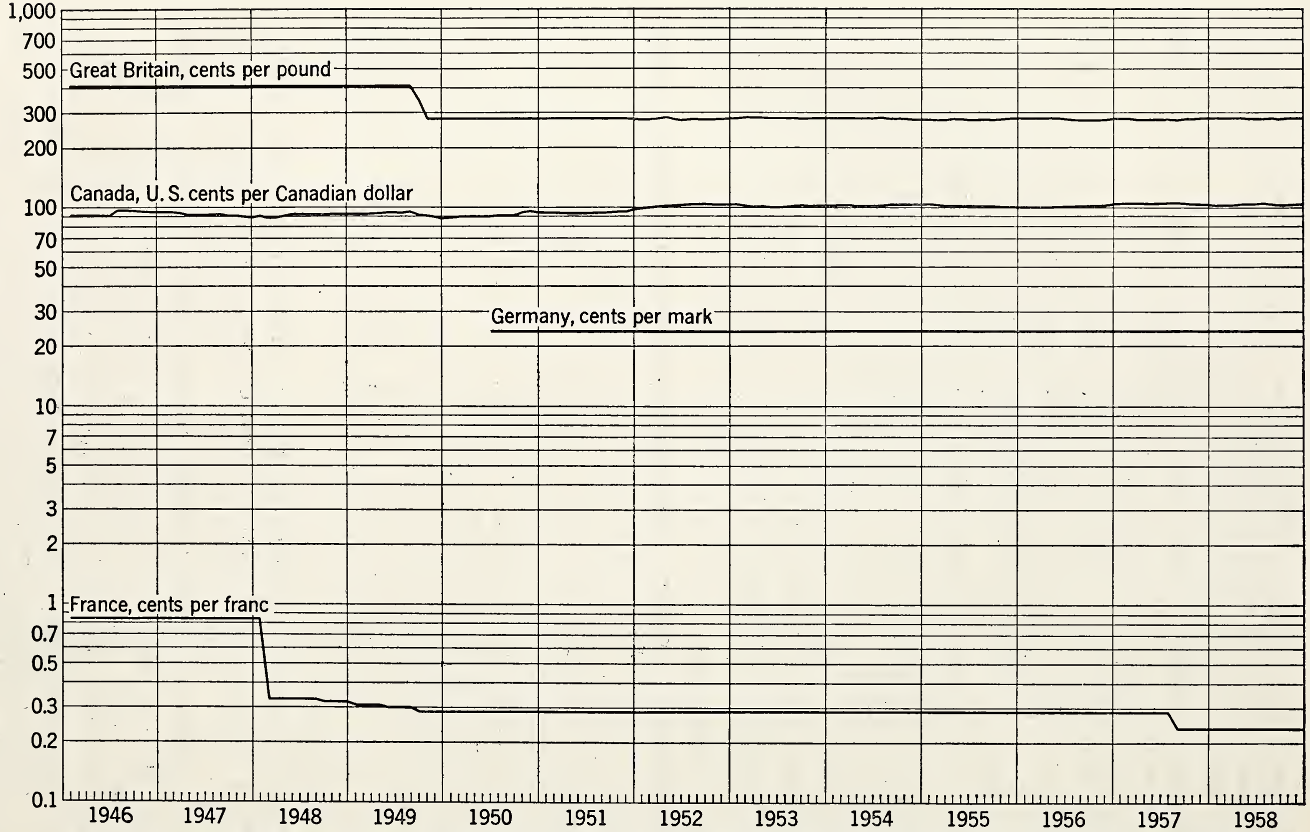

FIG. 13-3. Major dollar-exchange rates, 1946–1958. Free rates used where available. (*Federal Reserve Bulletin.*)

in line with price considerations were restored. Given the existence of a relatively abundant and skilled labor force and a highly competent and vigorous entrepreneurial group, the essential conditions for the successful operation of a free-market economy were fulfilled. By 1955, German production had approximately doubled its 1948 level.

Exchange-rate Adjustments. When the International Monetary Fund commenced its operations in 1946, it succeeded in obtaining from most of its member nations nominal par values for their respective currencies. Most of these were based on the relatively arbitrary patterns of the war. Most currencies were overvalued in relation to gold and the dollar. In markets where free currency exchanges could take place, they sold at discounts ranging from 10 to 60 per cent in 1947.[13] In 1948 the French franc was devalued by nearly one-half.

The major readjustment in this pattern of par values occurred in September, 1949, when Britain decided to reduce the value of the pound from $4.03 to $2.80. This reduction had several notable aspects. First, it was contrary to the spirit of the IMF requirements of prior notice and approval for rate changes. The British simply handed an ultimatum to the Fund on a take-it-or-leave-it basis. The Fund acquiesced hurriedly. Second, a large number of other countries, chiefly members of the sterling area, made similar devaluations at the same time. Third, the devaluation was probably excessive from the standpoint of Britain's welfare. The chief constructive purpose was to expand markets for British exports by making them more attractive in price. (Since imports were held in check by controls, no significant effects were being sought there.) However, the devaluation tended to worsen Britain's "terms of trade"; that is, the prices of her exports fell by more than imports, so that more exports were needed to obtain a given quantity of imports. And domestic inflation continued to pull resources into domestic consumption instead of exports. However, the exchange-rate adjustments were an improvement over the previous situation, and rates have held fairly stable since then. Of major currencies, the French franc failed to achieve stability but continued to decline under domestic inflationary pressures. Figure 13-3 shows the behavior of dollar exchange rates since 1945 for major trading countries.

INTERNATIONAL TRADE AND PAYMENTS, 1948–1958

Progress and Problems. The course of the world economy after the inception of the Marshall Plan demonstrated many features of solidly based economic recovery. Total production outside the Iron Curtain area increased by nearly 50 per cent during this period, with very strong showings by Germany and Japan. Comparable increases were registered in the volume of world trade; furthermore, trade volume in relation to national output maintained a level more comparable with the prosperous 1920s than with the depressed 1930s. During this period the world economy avoided any serious depression. The United States in particular eased fears that it would again pull the world into depression. When mild recessions occurred, they were effectively held in check. On balance, the policies of major free-world countries were toward freer trade and payments.

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[13] Triffin, *op. cit.*, p. 87.

Yet the period was full of problems and crises. Most serious was the cold war, with its periodic eruptions into open hostilities. The Korean crisis in 1950 gave the world economy a severe shock, and just when recovery from that was complete, the Suez crisis in 1956 upset things again. The cold war was the occasion for severe restrictions on trade with the Iron Curtain countries. It also brought an expanded mutual-security program which entailed large military expenditures, with attendant inflation, in the United States and allied countries.

Most of this period was marked by a continued "dollar shortage." Foreign countries seemed determined to buy more from the United States than they could sell. In part this demand stemmed from continued reconstruction needs, but as time passed, it reflected increasingly the pressures to be expected from inflation. Between 1947 and 1955, most of the countries of Western Europe sustained price increases on the order of 40 per cent. A few—West Germany, Belgium, and Switzerland—resisted the trend, but others, such as France, exceeded it.[14] Inflation was also a problem in South America and the Far East. Inflationary pressure stemmed partly from government arms programs and heavy capital investments and often led to international payments deficits and currency devaluation.

Nonindustrial countries suffered from instability in prices of primary products, such as coffee and tin, and from inability to obtain as much foreign capital as they desired. The upsurge of nationalism and anti-colonialism, the demand for social improvement, and the crafty appeals of the Communists combined to make underdeveloped areas unattractive to private investment and frequently incompetent to absorb public funds; at the same time these factors increased the urgency of producing a base for raising living standards.

Private capital outflow from the United States was relatively small. In the years 1948 to 1956, long-term foreign private investment averaged only about $1 billion annually, net of repayments—a dollar magnitude comparable to that of the 1920s but much smaller in real terms or as a percentage of national output. Great Britain provided considerable foreign lending, particularly for the less developed parts of the sterling area. Even with the grants of the United States government and the loans of the International Bank, the total volume of international investment was low when the need for it was high. Further, much of the investment made internationally went to relatively highly developed countries such as Canada or Australia or into extractive industries.

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[14] *Ibid.*, p. 65.

Exchange Controls and Policies—Sterling. Most European countries retained direct controls over foreign-exchange transactions in the postwar years. Governments wished to protect their limited supplies of foreign funds against dissipation from capital flight and to direct available funds into imports with a high social priority. A secondary objective was to discriminate against imports from "hard currency" areas (chiefly the United States) and in favor of those from countries whose currencies were more readily obtained. Emphasis in the pattern of controls came to rest on regional groupings rather than individual nations. Chief among these were the sterling area and the European Payments Union.

The sterling control system adopted during World War II extended over an area of sufficient size and diversity to permit extensive specialization within the area. When the war ended, controls were retained for several urgent reasons. By sales to Britain during the war, other countries had acquired sterling balances equivalent to about $15 billion. Much of this money would have been withdrawn if controls were relinquished. In addition, Britain's current account tended toward a deficit under pressure of domestic inflation resulting from reconstruction and welfare expenditures. Further, the Labor government was content to operate the economy through the strings of direct controls.

But there remained, as in the 1920s, a strong desire to restore the pound to convertibility and bulwark Britain's position as banker for the world. As we have seen, when the British made their first try at limited convertibility in 1947, they were burned in the attempt. Devaluation in 1949 gave the pound a more realistic exchange rate, and the electoral victory of the Conservatives in 1951 shifted emphasis in government policy toward control of inflation and renewed interest in convertibility. In 1954 and 1955 a series of measures increased the ease with which foreigners acquiring sterling in payments could convert it into dollars at values close to par. Finally, in 1958 nonresident sterling balances arising out of current-account transactions were made fully convertible. Balances held by British residents remained subject to control.

This movement toward convertibility has raised criticism that domestic economic welfare may again be subordinated to maintaining the international status of the pound. It remains to be seen whether serious conflict of this sort will ensue.[15]

The European Payments Union. The countries of Western Europe had in 1945 no vehicle for regional multilateralism comparable to the sterling area. In consequence, early postwar moves toward expanded trade chiefly took the form of bilateral trade and payments agreements. It soon became apparent, however, that this approach to payments and credit was unsatisfactory. Individual countries found themselves accumulating large surpluses with some partners and large debts with others, but with no ready means to offset one against the other.

The establishment of the European Recovery Program provided the basis for achieving such offsetting through a regional payments system, the European Payments Union, which began operations in 1950. Its goals were to promote freer trade and multilateralism within Europe, to provide individual countries with stand-by credit facilities to tide them over small-scale disequilibrium, and to encourage needed domestic adaptations to more basic maladjustments.

The Union extended to seventeen countries and through the membership of Great Britain overlapped with the sterling area. It provided for a regional clearinghouse, operated through the Bank for International Settlements. Initially, foreign-exchange dealings in each member country were monopolized by the central bank or other monetary authority. Exporters sold foreign currencies to the central bank, which forwarded them to EPU for credit. Importers bought foreign currencies from the central bank, which in turn was charged for them in the EPU account. Monthly settlements were made by individual countries against each other (at par values of individual currencies) in the traditional clearinghouse manner, in which each country emerged with a single debit or credit vis-à-vis the EPU. Because of this pooling, exports to one EPU country were as good as to another, and imports from one no more burdensome than another. Thus incentives for discrimination in favor of individual trading partners were largely removed.

Deficit countries were permitted to remain in debt to the EPU up to a certain fraction of their trade, thus providing them with automatic credit against payments deficits. Beyond that point, partial or complete settlement of deficits in gold or dollars was required. Creditor countries in turn agreed to accept credit on the books of the EPU for a certain percentage of their surpluses. These credits could, of course, be applied against subsequent deficits, and their possession encouraged surplus countries to expand their imports. Beyond a certain point, however, the creditor countries were entitled to draw part of their surplus in gold or dollars. The terms were such that both deficit and surplus countries had incentives to remove the disequilibrium.

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[15] See Andrew Shonfield, *British Economic Policy since the War,* Penguin Books, Inc., Baltimore, 1958.

The EPU was established under the auspices of the OEEC and received its initial capital from Marshall Plan aid funds. This organizational framework provided for a unified and reciprocal approach to reconstructing capital, improving finance, and liberalizing trade. The achievements in reducing quotas and exchange barriers to trade were very substantial: the percentage of intra-European trade free from quotas or exchange prohibitions rose from 30 per cent in 1949 to 80 per cent in 1957. However, the EPU countries also made great improvements in the freedom of external trade, particularly after 1953.[16]

The Union came into operation just as the Korean crisis was upsetting the international economy and found its members experiencing strong deficits or surpluses. Some of the debtors such as France simply exhausted their quotas of credit against EPU and were obliged to return to a gold-settlement basis. Others, notably Germany and Britain, weathered heavy deficits by counterinflationary measures at home and some temporary tightening of trade controls. Fortunately, the countries with large surpluses were usually willing to reduce import restrictions, thereby taking part of the burden off the deficit countries.

Once the world economy had settled back, EPU passed through extensive modification. In 1953 many member countries began to permit private trading and arbitrage in foreign exchange, thus ending the monopoly position of central banks. Under such a situation, most of the clearing of international payments did not get to EPU. Dealers would buy foreign currencies from exporters and sell them to importers. Most central banks remained in the foreign-exchange market through open-market dealings for currency stabilization, but they could settle their net deficits or surpluses without going through EPU. Restoration of exchange markets made the automatic credit provisions of EPU less necessary, and in 1955 the Union required that 75 per cent of net balances be settled in gold.

With increasing freedom for foreign-exchange trading, the facilities of EPU became less important. Finally, at the end of 1958 twelve European countries, accounting for the bulk of production and trade, made their currencies convertible for nonresidents. A month later, West Germany extended virtually full convertibility to its own residents as well. France, in addition to participating in exchange liberalization, devalued the franc by 15 per cent. Soon after, drastic financial measures to control inflation were adopted by the De Gaulle regime. The French government in 1959 also set about converting existing francs into new ones at a ratio of 100 to 1. This made the new "heavy" franc worth about 20 cents, just about what the franc was worth before 1914.

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[16] Triffin, *op. cit.*, p. 267.

With these major movements toward exchange freedom, EPU was terminated. In its place was adopted the European Monetary Agreement, which we shall discuss in a subsequent section.

The European Payments Union served successfully as a decompression chamber through which Europe passed from the strictures of postwar bilateralism to a situation approximating convertibility. The Union had manifested a discriminatory bent toward trade with the dollar area, but this proved of little consequence. Fear that EPU would develop into an inefficient self-contained group, unable to produce or trade with the rest of the world on a competitive basis, was allayed by the great increase in EPU exports to the dollar area, which increased by more than 150 per cent from 1949 to 1955. The benefits of multilateral trading and competition within Europe clearly outweighed the regional limitations of such trading.

Comparison is inevitable between the Union and the International Monetary Fund, for their objectives were very similar. Why was EPU in practice so much more effective? The following statements may provide the explanation:

1. EPU oriented its policies around a continuous administration of clearings, whereas IMF has been essentially a stand-by organization with little direct contact with trade and payments.

2. EPU dealt with all types of trade restrictions, not merely exchange controls. It provided a medium for reciprocal concessions, lessening the danger that any one country would lose out by liberalizing its imports. It linked trade liberalization with the payments position of individual countries, so that import restrictions were eased when this could most easily be tolerated.

3. The European location of EPU and its staffing and organization were better adapted to effective functioning than the cumbersome and ill-located machinery of the IMF.

European Monetary Agreement. At the end of 1958, the European Payments Union was replaced by the European Monetary Agreement, consisting of three major provisions:

1. The EMA set up a European Fund of $600 million to be made available for short-term loans to aid members in payments difficulty. The loans are not automatic and are limited to two years duration. Funds come from the capital of EPU and from contributions of members. In addition, the agreement provided that each member would make available to the others short-term loan facilities for intramonthly transactions.

2. Each country agreed to fix a price in its own currency at which

it would buy and a price at which it would sell dollars. These dollar points were to be fairly close together and would provide limits to exchange-rate movements among member countries. The agreement also provided for mutual arrangements to secure consistent cross rates.

3. Each country agreed to take part in a monthly settlement through BIS of its net debits and credits with the group and to pay deficits in full in gold or dollars. However, no country is obliged to collect its claims in this manner, and indeed the system provides financial incentives to prefer settlements through the market. Because of these incentives, it is possible that the clearing facilities of the agreement will be little used. The chief importance of the system lies in the agreement for credit facilities and for exchange-rate policies.

By mid-1959, then, the industrial countries of the free world had removed most of their exchange controls. Even where resident transactions were still controlled, the restrictions had been relaxed, and most requests were granted. The chief remaining spheres of exchange control were underdeveloped areas such as Latin America, but even these had shown some tendencies toward liberalization, for instance, through adoption of free flexible rates for some transactions.

This trend toward convertibility did much to restore money to its traditional economic functions internationally. With stable exchange rates and convertibility, transactions can freely be made on the basis of relative prices, and money can function as a medium for promoting specialization and investment. If domestic price relationships are distorted, these functions may not be performed efficiently. Restoration of payments freedom does not automatically solve the problems raised by tariffs, import quotas, or domestic price-support programs. Fortunately, encouraging progress has been made in reducing tariff and quota restrictions on imports through the periodic tariff concessions under the General Agreement on Tariffs and Trade, through the European Coal and Steel Community, and through the European Common Market Treaty instituted in 1959.

The United States Balance of Payments. The late 1950s witnessed a transformation in the United States balance of payments. "Dollar shortage" ceased to be a problem for most European countries, as total American imports moved closer to exports. Some observers argued that American exports were pricing themselves out of world markets, a view supported by declining exports of steel and autos. Price considerations also encouraged higher imports. Underlying the shift, however, was the great growth in productive capacity in foreign countries, which enabled them to get along with less American products and to compete in the American market without stinting home demand. American expenditures for military aid remained high.

The most dramatic evidence of the shift in the American balance was a large outflow of gold which began in early 1958. The monetary gold stock declined from $22.8 billion at the end of 1957 to $19.7 billion in June, 1959. Some critics called this a "flight from the dollar" resulting from price inflation in the United States. However, foreign holdings of American bank deposits and other short-term claims increased during the period. The chief reason for the gold outflow was a deficit in the American balance of payments, which resulted because American investments and grants to foreigners exceeded the United States export surplus. Continuation of the gold outflow might be cause for alarm, but the flow achieved by mid-1959 was probably desirable from the standpoint of improving the distribution of the world's gold stock and increasing the liquidity of major trading countries. The desire to halt this outflow became one of the arguments for a stronger stand against further inflation in the United States.

Current Problems. Recent developments have shown an encouraging trend toward restoration of an economic order in which the advantages of free markets can be achieved without serious detriment to other valid social objectives. This framework differs from that of the pre-1914 period in that it rests largely on international agreements and cooperation. The best measure of this accomplishment is not in the number of international agencies but in the impressive record of cooperation which has been compiled both through formal and informal channels.

The requirements for effective stability in a relatively free international economy include the following:

1. A relative balance in the underlying flow of imports, exports, and capital transactions, in which resource allocation, employment, and income distribution in individual countries are not seriously inconsistent with existing trade patterns.

2. An absence of serious shocks of short-run nature, comparable to World War I or the Depression of the 1930s. The major industrial countries have progressed greatly in willingness and ability to prevent depression. Recent disturbances have arisen largely out of war and related upheavals, which have created tendencies toward inflation. Fortunately, most industrial countries have taken a firmer stand against inflation than in the years before 1953. If each major trading country can maintain full employment without inflation, a favorable environment for free international trade should be developed.

3. Since disturbances cannot be eliminated entirely, there must be a suitable array of shock absorbers to deal with them. By 1959, the following had all become valuable aids:

a. Some degree of exchange-rate flexibility within fixed limits to ensure stabilizing speculation.

b. Some floating supply of short-term credit amenable to the influence of interest-rate changes.

c. International liquidity—funds which individual countries could use to tide them over a temporary deficit. Gold and dollar holdings of foreign countries increased rapidly since 1953 and exceeded $35 billion at the end of 1958.

d. International credit facilities which can substitute for actual cash holdings. There are an impressive array of these—the IMF and the European Fund under EMA, the willingness of central banks and related agencies such as the United States Export-Import Bank to lend, and the improved status of private credit either for securities or short-term commodity loans.

4. A spirit of international cooperation, as opposed to one of beggar-my-neighbor such as ruled between the World Wars.

Aside from the host of problems arising from the cold war and the role of Russia, we may note two areas requiring concern. The first is the continuing problem of underdeveloped areas. This is a problem of social and political dimensions as well as economic, but it embraces such economic elements as exchange rates and controls, prices of raw materials, and particularly the flow of international investment. The International Bank has been expanding its activities, aided by the increasing availability of capital in Europe. The United States has provided direct grants and loans, partly through the Export-Import Bank. One indication of concern was the formation in 1956 of an International Finance Corporation under the auspices of the International Bank. The IFC is designed to provide funds to private firms in underdeveloped areas without requiring government guarantee. Its capital is relatively small—$93 million—and its individual investments are intended to be less than $2 million. Its funds are more nearly equity investments than those of its parent bank, but like the latter, it encourages joint participation of private capital. Like the parent bank, its importance is intended to lie more in priming an increased flow of private capital than in its own outlays.

A different problem concerns the danger that the major trading countries may soon find themselves back on a gold-exchange standard resembling that of the 1920s. Large sums are held on deposit in American and British banks by foreign central banks and private firms. If these are withdrawn or shifted about, they can create serious monetary problems, similar to those of 1931. One suggestion for avoiding these difficulties is that of Triffin, who advocates forming some sort of world central bank which would hold foreign-exchange reserves for national central banks as the Federal Reserve does for commercial banks. The liabilities of this bank could be used to settle clearing balances. They would be convertible into gold but would not need to be backed by 100 per cent gold reserves. The danger that individual countries would be subject to "runs" on their currency would be reduced. Such a bank, which might evolve from the present IMF, EMA, or BIS, or some combination of them, would also be a ready source of short-term stabilization credits to individual countries.

SUMMARY

International financial history has passed through three important stages in the last century. The first was the emergence, spontaneous and unplanned, of the nineteenth century gold standard. The stable exchange rates and full convertibility which this standard provided were well designed to permit the price system to operate internationally. Further, the system tended to encourage stabilizing movements of short-term credit which helped ease equilibrium adjustments. Under the gold standard, however, international disturbances did contribute to domestic instability in the trading countries—first in areas of prices, money, and credit, later to an increasing degree in incomes, output, and employment.

The second phase was the long period of financial disorder which began with World War I. In this period, the unity and order of the gold standard were lost. The chief disrupting force was the nationalistic hatred which poisoned international relations throughout the period. During this time the world economy passed through the inflations of the early 1920s. Next, most countries returned to shaky gold-bullion or gold-exchange standards that were based on a thin gold reserve and lacked public confidence in exchange rates and convertibility. The coming of depression after 1929 turned loose a financial panic which drove most of the world off gold. To ward off deflation or promote domestic recovery, many countries resorted to currency depreciation and exchange controls. And although the Depression waned in the later 1930s, it was replaced by the worse disorder of steadily expanding war.

The third phase, which begins with the end of World War II, has been marked by the search for a new principle of world financial order which would combine the benefits of the price system with more effective protection against violent domestic instability. This quest was enormously complicated by the split between Russia and the West, particularly by rearmament and military actions. It could not proceed with much success until the formidable task of postwar reconstruction was completed under the Marshall Plan. By the end of 1958 the industrial countries of the free world had made impressive progress toward their financial goal. Important assistance came from such world-wide institutions as the International Monetary Fund and the International Bank and from the regional groupings included in the sterling area and the European Payments Union. By the end of 1958 the major countries of the industrial world had established free convertibility of currencies for nonresidents and had reduced the actual burden of resident controls. Free markets had been restored for foreign-exchange transactions. Exchange rates were fixed by establishing dollar parities and by agreeing to use stabilizing purchases and sales to keep rates within a narrow range of par.

The movement toward convertibility came with the achievement of underlying economic and financial strength. Production had risen greatly, and individual countries were attempting to maintain full employment without inflation. International liquidity and stand-by credit facilities and the revival of stabilizing short-term credit movements promised to provide effective shock absorbers against disturbance.

However, the flow of investment capital to underdeveloped countries was far from satisfactory. The revival of the world economy was impeded by the continued problems of the cold war, and there was danger that the undesirable features of the gold-exchange standard might be restored. The most encouraging indication of economic revitalization, however, was the degree of international cooperation and good will among the Western nations of the 1950s.

QUESTIONS FOR STUDY

1. "For a country with large foreign trade and few import restrictions, trying to get out of a depression by expansionary monetary and fiscal measures may be like trying to heat a house in winter with all the doors and windows open." Explain.
2. Compare and contrast each pair:
    a. The gold standard of the 1920s with that of the pre-1914 period
    b. The International Monetary Fund with the European Payments Union
    c. The International Bank for Reconstruction and Development with the International Finance Corporation
3. Monetary policy aimed chiefly at protecting a country's gold reserve against outflow frequently involved tightening credit during recession. Why?
4. Beggar-my-neighbor policies aimed at raising *GNP* in one country by cutting its imports are likely not only to injure other countries but also to prove ineffective for the country employing them. Why?
5. Compare the advantages and disadvantages of the pre-1914 gold standard with those of extensive foreign exchange controls. In what ways did the pattern of international finance in the late 1950s attempt to achieve advantages of both earlier systems?

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PART SIX

HISTORY OF MONEY AND MONETARY POLICY IN THE UNITED STATES

CHAPTER 14

MONETARY DEVELOPMENTS BEFORE THE CIVIL WAR

PREFACE TO MONETARY HISTORY

Why Study Monetary History? For the economist whose primary concern is with contemporary affairs, the study of monetary history is useful in three major ways. First, history provides us with the empirical evidence needed to check the realism of economic theories. In particular, the relationships which we spelled out in Part 3 rested heavily on historical statistics. Second, history provides us with insights into how contemporary monetary and financial institutions got that way—what needs and problems gave rise to the arrangements which now exist. Third, since the study of money has as one important goal the formulation of desirable policies, it is essential to appraise the actual success or failure of the policies adopted in the past. That "those who cannot remember the past are condemned to repeat it" is nowhere more true than in monetary policy. Historical analysis alone may not suffice to define good policies, but it can do a great deal in helping avoid those which have proved unsatisfactory.

Monetary history is also an interesting and valuable part of the study of history in general. Some of the most important and dramatic episodes in American history have involved monetary issues associated with such personalities as Hamilton, Jackson, and Bryan. Monetary history reveals a fascinating interplay between monetary conditions in the narrow sense and the broader economic, social, and political situation. Thus monetary conditions were a major factor in economic fluctuations, which in turn played a large part in determining subsequent monetary policies. From the formation of the Constitution through the New Deal, major political developments have been conditioned by the state of the business cycle. The study of American history in general is incomplete without careful attention to money. Furthermore, the techniques of economic theory provide the necessary guides for understanding the interplay between monetary conditions and the state of the economy and for evaluating the monetary controversies of the past.

Themes of American Economic History. Three aspects of American economic development are particularly relevant as background for monetary history—growth, structural change, and fluctuations.

Growth. Since colonial times, the American economy has been characterized by a high rate of economic growth. The United States, a sparsely settled strip along the Atlantic in 1790, had spanned the continent by 1860. A population which probably reached 1 million during the eighteenth century grew to 170 million by the 1950s. With this increase came tremendous expansion in output and in living standards. Some measures of growth for significant dates are given in Table 14-1.

Table 14-1

Measures of American Economic Growth

Date	*Population, millions*	*GNP, 1958 prices, billions*	*Output per capita, 1958 prices*
1800	5	$1 to 2	$200 to 400
1860	31	19	600
1910	92	118	1,280
1929	122	201	1,650
1958	174	437	2,500

SOURCES: *Statistical Abstract of the United States; Economic Report of the President; U.S. Income and Output.* (1800 and 1860 output estimated by author.) Number of zeros in last column indicates degree of rounding.

This rise in economic productivity can be attributed to improved technology, improved labor skills, increased specialization and exchange, and increased capital per worker. Monetary and financial factors have been importantly involved in the last two of these influences.

Structural change. The growth of the American economy has brought with it important structural changes. Technological development has produced innovations in the types of products and methods of production. Increased specialization and exchange have expanded transportation and distribution operations. One of the most basic shifts has been the relative decline in employment in agriculture and the corresponding increase in manufacturing employment. Associated with this changing ratio has been the increasing tendency for economic activity to be market oriented, thus enlarging the important role of money, the price system, and financial institutions. The most marked recent shift is the enlargement of government activity. Figure 14-1, showing the relative distribution of the labor force, gives a good indication of the structural evolution of the economy.

Fluctuations. From colonial times, the American economy has suffered from severe fluctuations in incomes and expenditures. Major business depressions brought with them debt crises and business disorganization and, with the coming of industrialization, mass unemployment. Wars usually were accompanied by inflation. Peacetime fluctuations were largely the result of an unstable pattern of business investment, aggravated by the balance of international payments. The banking and financial system also played an important part in some of these fluctuations, with banking and stock-market panics as the most obvious manifestations.

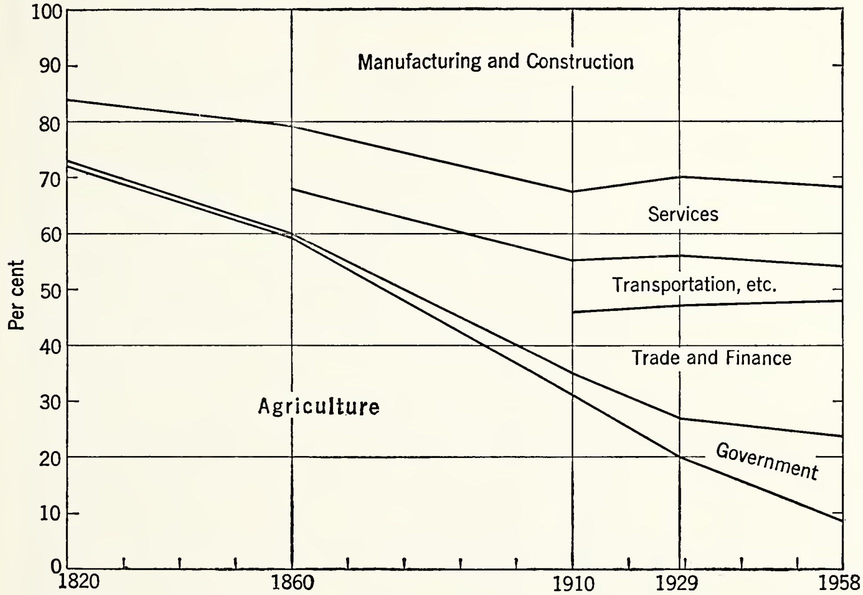

FIG. 14-1. Employment by industry, 1820–1958. (*Historical Statistics of the United States; Survey of Current Business.*)

Figure 14-2 indicates the broad pattern of fluctuations through which our economy has passed. The fluctuations in recent years can be depicted by *GNP* expenditures, but for earlier years prices are the best available evidence.

Themes of American Monetary History. The monetary history of the United States is characterized by certain consistent underlying themes, of which we shall stress three: the relation to wars and business depressions, the relation to government finance and the public debt, and the search for a "structural panacea" in monetary policy.

1. Wars and depressions have brought about most of the major

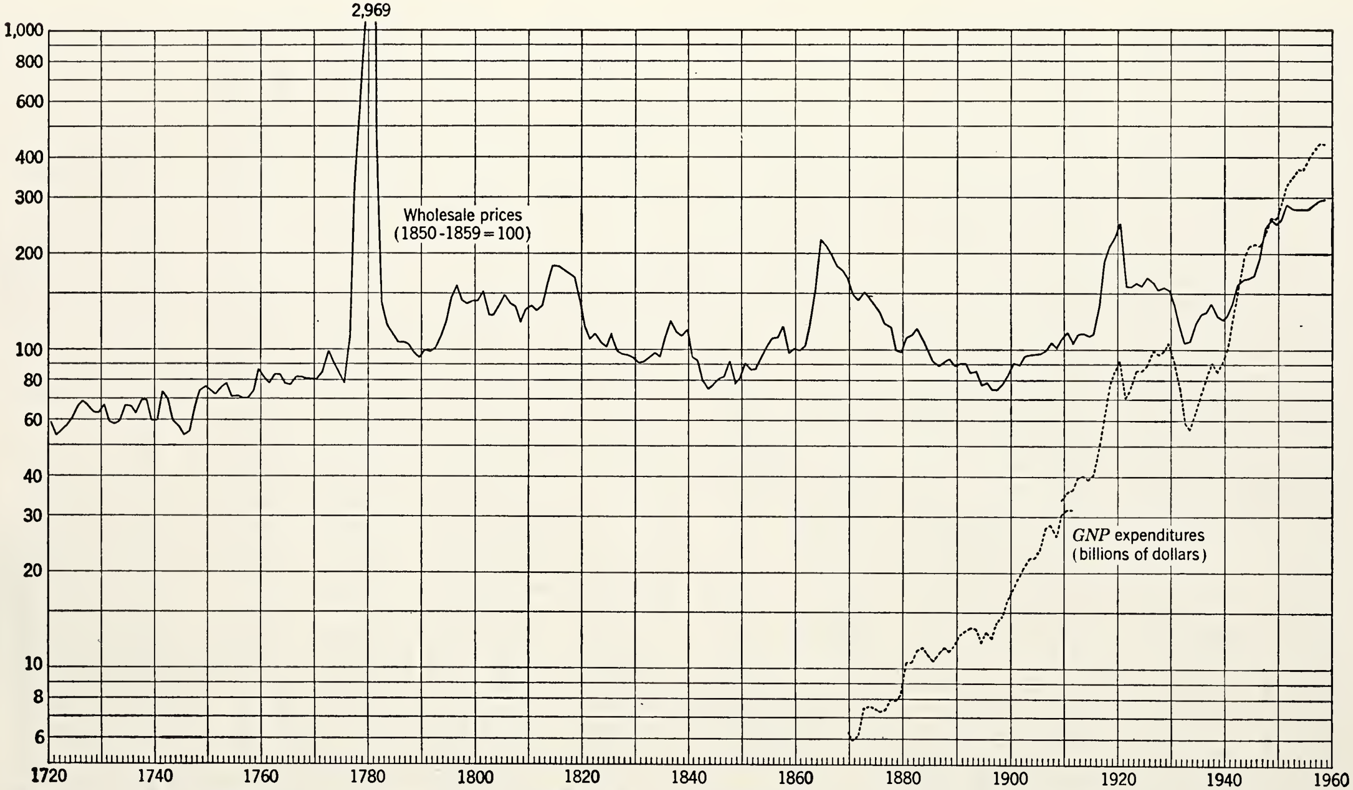

FIG. 14-2. Fluctuations in prices and *GNP* expenditures in the United States, 1720–1958. (Wholesale prices are taken from *Employment, Growth, and Price Levels*, Hearings before the Joint Economic Committee, Part 2, 1959. Data for *GNP* expenditures are from: 1869–1909, unpublished data compiled by Simon Kuznets for the National Bureau of Economic Research; 1909–1958, *U.S. Income and Output.*)

changes in financial institutions and policies. To war and its aftermath can be attributed our first commercial bank, our first real central bank, our first permanent Federal paper currency, and the National Banking System. Economic depressions helped produce the Constitution and Hamilton's monetary program, made it impossible for the Second Bank of the United States to survive, aroused the Greenback agitation and the free-silver crusade, created the Federal Reserve System in 1913 and drastically altered it in 1932–1935, ended the gold-coin standard, and produced our extensive system of Federal lending, insurance, and guarantees.

2. Government finance has also influenced money and banking on numerous occasions. The link was most notable in wartime, when government deficits were financed by paper currency issues or bank credit. The Bank of North America, the two Banks of the United States, and the National Banking System were all created to lend to the government or to prop up the bond market, and the Federal Reserve has operated toward such goals on several occasions. All these institutions were also designed to aid in handling government funds. The national debt also has served as an instrument of monetary control under the National Banking System and the Federal Reserve.

3. Much of American monetary history represents a search for a "structural panacea" in monetary policy, based partly on a distrust for "discretionary" policies placing freedom and power with public officials. Until recent years, the policy goal was an automatic monetary arrangement which could be set up by legislation and then function by itself without the need for further conscious government intervention. In such an arrangement the qualitative control of money and finance was stressed, so that definition of the kinds of money would lead to automatic determination of the quantity of money.

The coinage policies of the nineteenth century, the First and Second Banks of the United States, the Independent Treasury System, the National Banking System, and even the original Federal Reserve System were all established with the hope and expectation that they would operate automatically in a manner beneficial to the whole economy. In each case the hope proved vain. Some of these policies possessed sufficient flexibility to permit the emergence of discretionary action by strong leaders. This in itself was regarded as a defect requiring remedy in the Second Bank and the Independent Treasury System. None of these structural arrangements could prevent the periodic monetary crises which aggravated the American business cycle consistently from 1818 until 1933. The last failure was the worst. Since 1933 the goal of a structural panacea seems at last to have been put aside. Recent opinion has accepted the apparent inevitability of discretionary action and has focused attention on how to manage it; still, there are those who would prefer some sort of automatic mechanism.

Two theories of automatic monetary control have played a major role in American monetary development and still exert considerable influence in some quarters. The first is the theory of the automatic gold standard; the second is the commercial-loan theory of banking.

The need for a link between money and gold has been advanced on many levels. Some argue that since gold has a "stable intrinsic value," one can stabilize the value of money by keeping it convertible into gold. Certainly, if the quantity of money were kept in some fixed relation to the quantity of gold, the world's money supply would remain fairly stable, with gradual growth proportional to production of additional gold. If adopted internationally, the gold standard provides a means of retaining stable exchange rates and convertibility of currencies and operates automatically (if not painlessly) to remove disequilibrium in international payments. But historically the gold standard tended to transmit instability from the area of origin to others, and gold withdrawal often touched off panics and capital flight.

The commercial-loan theory of banking enjoyed wide acceptance as a basis for monetary policy from the time of Adam Smith until the 1930s. It asserted that bank loans should consist chiefly of short-term "commercial" loans to merchants on the security of inventories and particularly goods in transit. Bills of exchange and acceptances were highly regarded. Such loans would be safe, because the security was low in risk. They would be liquid because of their short maturity. Further, since loans were based on goods already produced, the quantity of money would adjust itself to the need for it, without danger of excess or deficiency.

This theory reached its peak of popularity in the original Federal Reserve Act, where it dominated the conception of the rediscounting function. As a maxim for commercial banks, it helped promote safe and conservative banking; but by nature, the principle cannot protect the liquidity of the banking system as a whole, since loans will be repaid chiefly by check. And since loans are made on the value of goods, not their quantity, the system furnishes no guarantee that the quantity of money will adjust ideally to the needs for it.

MONETARY DEVELOPMENTS IN COLONIAL TIMES

Introduction. Colonial monetary history is in many ways remote from and irrelevant to contemporary affairs. The monetary problems of an industrial and market-oriented economy are vastly different from those of a relatively primitive agrarian society. Earlier colonial experience is interesting chiefly in relation to the evolution of the institution of money itself. As Professor Lester[1] points out, "the history of money in the American colonies illustrates most of the stages in the evolution of money from a very useful commodity to some figures on a bank ledger—from cows to checking accounts." However, eighteenth century colonial affairs contained some strikingly modern features, including long continuous experience with government paper currency and considerable use of government lending. Individual colonial governments enjoyed considerable autonomy and found considerable scope for experiment.

The Colonial Economy. The colonial economy consisted of a series of small mercantile towns along the Atlantic Coast, each serving as market outlet and source of supply for an agricultural area immediately surrounding. Specialization and exchange in the towns provided the principal area for the use of money. Many farmers either were outside the market entirely or traded through barter. Poor inland transportation isolated each town from the others, but international trade, particularly with Britain and the West Indies, was extensive. The colonies exported primary products, such as tobacco and foodstuffs, and relied heavily on imports for finished manufactures and luxury consumption goods. There were strong tendencies toward an import surplus.

Gold and Silver. Circumstances were not favorable to a monetary circulation of gold and silver coins in the colonies. Since precious metals were not mined in North America, imports were the only source; but Great Britain prohibited the export of specie, even to the colonies, in accordance with the prevailing bullionist dogmas. Trade with the West Indies (and piracy) brought in Spanish "dollars," which became the commonest circulating coins among a motley collection of foreign issues. The strongest barrier to specie circulation was the tendency for metal to be exported to buy more commodity imports.[2]

While the British government made no effort to provide a monetary system for the colonies, the individual colonial governments did attempt to encourage specie circulation. Massachusetts established a mint in 1652, the operations of which probably improved the quality of circulating coins if it did not increase their quantity. This mint was ordered to close by the home government in 1686 as an infringement of the royal prerogative. Several colonies tried to encourage inflow of specie by overvaluing it in terms of colonial pounds, shillings, and pence. In

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[1] Richard A. Lester, *Monetary Experiments: Early American and Recent Scandinavian,* Princeton University Press, Princeton, N.J., 1939, p. 11.

[2] "The colonists needed other things more than they needed a costly money supply. To them, silver and gold money would have been like ivory-handled hayforks would be to a farmer—a luxury that is less easy to handle than are wooden-handled ones." *Ibid.,* p. 21. The term "specie" was commonly used to refer to gold and silver.

1704, the home government ordered that colonial currency should not value specie at more than one-third above British par, but this regulation was evaded. In any event, exchange depreciation could not attract specie permanently, since price level changes tended to offset the attractions of the favorable exchange rate.

Commodity Money. The characteristic response to scarcity of money in the seventeenth century was the development of a wide variety of commodity money. Standard items of consumption such as nails and musket balls made fairly good money but had an unhappy tendency to be used up. Therefore some colonies conferred monetary status on raw produce. In the South, tobacco enjoyed monetary status during most of the colonial period. It was relatively nonperishable and had preferred status as an export commodity. In 1742 Virginia began issuing tobacco notes, a form of warehouse receipt which served as currency until after the Revolution. Classing such a commodity as money had little significance for current private transactions. But for taxes, public expenditures, and previous debts, legally binding values were assigned to the monetized commodity. These valuations were often overly generous and encouraged increased production of the monetized product, reducing its market value to the detriment of creditors. Furthermore, produce offered for taxes or debt payments was often substandard in quality.

In addition to useful commodities, the colonists used Indian wampum of beads and shells for trade with the Indians and to some extent among themselves. Several states conferred legal-tender status on wampum in the seventeenth century, although discovery of methods to produce it cheaply led to its desuetude outside frontier areas.

Paper Money. The most provocative colonial response to the money shortage was the issue of paper money. The practice was suggested by the common use of transferable IOUs by merchants. It had its immediate precedent in French Canada, where the colonial government met a delay in remittance from Europe by issuing IOUs written on ordinary playing cards. In 1690, Massachusetts made the first issues of bills of credit to finance military deficits. The practice soon spread to most other colonies, which issued large amounts of paper currency in the war period 1713–1718 and caused substantial price inflation. Most colonies continued paper circulation until after the Revolution, and large additions were made during the numerous military operations of the century. These notes were not convertible into anything on demand but were receivable in taxes. Ordinarily, when a new issue of notes was authorized, taxes were concurrently adopted to bring in enough revenue to "sink" the notes over a predictable period. Once returned to the government through taxes, notes were supposed to be withdrawn from circulation and destroyed, but political pressure often led to reissue. For the colonial governments, issue of paper currency served as a medium for government deficits and surpluses before funded government loans became common.

In addition, several colonial governments established loan offices through which paper currency was put into circulation by means of mortgage loans. These notes also were not convertible and were to be withdrawn when the loans were repaid. Loan issues, begun about 1712, allayed common complaints about scarcity of money and loans. Such loan activities were an early counterpart of the commercial bank, an institution which did not exist in British North America because of prohibitive British legislation. The principal support for these loan-office projects came from merchants eager for credit to expand their operations. Loan expansion generally occurred during depressed times, while repayments tended to withdraw this currency from circulation during periods of prosperity. Thus the loan program tended to operate countercyclically.

Experience with paper currency varied widely among individual colonies. Several of the middle colonies, notably Pennsylvania, managed their currency with circumspection. The money supply was enlarged sufficiently to promote the spread of the market economy, specialization, exchange, and the price system without harmful inflation. Indeed, Pennsylvania paper was more stable than specie in 1720–1750, when prices in specie were declining. Real inflationary abuses did occur in some colonies, chiefly Rhode Island, the Carolinas, and (until 1749) Massachusetts. Some of the other colonial governments also indulged in excessive issues to finance wartime deficits.[3]

In any event, the British government, while doing nothing constructive to establish a colonial monetary system, made several efforts to curb paper-money issues, chiefly because they reduced its control over colonial governments. In 1751 the home government ordered a halt to legal-tender issues in New England and in 1764 extended this to all colonies (with exception, however, for wartime issues, which were of course the chief cause of harmful inflation). This prohibition aroused a storm of protest among colonial merchants, whose objections were conveyed to the House of Commons in 1766 by Benjamin Franklin, one of the strongest advocates of the Pennsylvania currency system. British monetary restraint was one of the major factors which helped stir up sentiment for independence.

Partly under British influence, the relative importance of paper cur-

[3] *Ibid.;* see also E. James Ferguson, "Currency Finance: An Interpretation of Colonial Monetary Practices," *William and Mary Quarterly*, April, 1953.

rency declined in the later colonial years, particularly in the areas where it had been abused. Wealthy New England was largely on a specie basis, although some governments still issued near-money Treasury notes. On the eve of the Revolution, the total money supply of the colonies was about $12 million, of which about half was paper and half specie.[4]

Colonial experience with paper currency was a monetary innovation which had no real counterpart in Europe, for it involved about a half century in which the quantity of money was determined chiefly by direct government action.

PAPER MONEY AND INFLATION: REVOLUTION AND CONFEDERATION

Problems of War Finance. Considering the experience of the half century prior to the Revolution, it is hardly surprising that the expenditures of the war were financed to a large degree by paper money. But the scale of issue exceeded anything in the past, the money became depreciated and discredited, and in the end the institution of government paper itself became widely unpopular.

The country's ability to wage effective war was hampered by its low total output and the lack of production of many items needed for war purposes. The first shortcoming was ultimately outweighed by the tremendous strategic advantage of geographic position and by the problems of supply and morale facing the British. The second made it imperative to obtain foreign assistance and reallocate domestic resources. War finance was further complicated by the relatively limited extent of the money economy. Furthermore, there was little political or administrative basis for extensive taxation or loans.

Paper Money. Experience and natural inclination led colonial legislators to try paper money first, and they resorted to taxation and regular borrowing only when it was obvious that currency issue was running into trouble. Both the Continental Congress and the states issued currency, mostly through direct payment to suppliers or soldiers. In 1775, new issues of $11 million virtually doubled the money supply, and an additional $44 million appeared in the following two years. About 70 per cent of this new currency came from the Continental Congress, and the "continentals" sank rapidly in value. In 1778–1779 at the urging of Congress, Northern states generally stopped issuing currency, but $16 million more was created in the hard-pressed Southern states. However, Congress poured into circulation about $60 million of currency in 1778 and $140 million in 1779. At this point, the situation could well be regarded as one of hyperinflation. Prices sky-rocketed—butter sold for $12 a pound in Boston, and a suit of clothes cost $2,000. There were complaints about speculation and hoarding of commodities.[5]

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[4] B. U. Ratchford, *American State Debts*, Duke University Press, Durham, N.C., 1941, p. 25. This is one of the best brief treatments of colonial paper money.

Some states attempted to curb the depreciation of paper issues by making them legal tender for debts and by imposing price controls. Merchants who refused to accept the currency or who marked their prices up excessively were subjected to varying pressures, including mob violence. Nevertheless, as during the Russian inflation of 1917–1921, such measures were frustrated chiefly by the unwillingness of farmers to sell goods for the paper currency.

The degenerate condition of the currency led Congress and the states to become more diligent in effecting financial remedies. States increased taxation, and Congress tried harder to borrow on funded loans. Foreign loans, chiefly from France, began to flow in after 1777. Finally, in 1780, Congress drastically altered its currency policy. A new currency, redeemable in specie after five years, was offered in exchange for the old at the rate of 20 to 1. About half the existing continentals were withdrawn in this way; the remaining $120 million continued to depreciate and were mostly destroyed or discarded as worthless. Their legal-tender status was withdrawn. Congress issued no further paper currency, although it continued deficits based on issues of interest-bearing securities and notes.

After 1780, emphasis in paper issues shifted back to the states. Fighting was concentrated in the South until Cornwallis surrendered in 1781, and Virginia poured forth over $150 million of currency in 1780–1781, an amount sufficient to generate another local hyperinflation. The behavior of wholesale prices during Revolutionary America's hyperinflation is shown by Table 14-2.

Table 14-2
Wholesale Prices in Philadelphia, 1775–1782
(1850–1859 = 100)

1775	76
1776	105
1777	320
1778	581
1779	2,879
1780	10,222
1781	4,931
1782	137

SOURCE: *Employment, Growth, and Price Levels, Hearings before the Joint Economic Committee,* United States Congress, April, 1959, p. 394 (statements of George R. Taylor and Ethel D. Hoover).

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[5] Allan Nevins, *The American States during and after the Revolution,* The Macmillan Company, New York, 1924, pp. 470–492.

The end of hostilities in 1781 found the United States with about $325 million (face value) of currency circulating, all depreciated anywhere up to 1,000-fold. Each state set to work to mop up this devalued currency through taxation and through issuing funded securities; each accepted new continentals and its own currency at anywhere from par to the Virginia conversion of 1,000 to 1. Old continentals were left uncared for until the Federal Funding Act of 1790 offered to refund them into securities at 100 to 1. Only a small portion were so funded.

Appraisal of Revolutionary Inflation. Although the inflation and the multiplicity of currency issues certainly contributed to economic disorder, there would have been plenty of disorder anyway because of the war, the lack of national unity, and the absence of a single powerful central government. The disorder resulting from inflation in the agrarian American economy of 1780 was not comparable to that in industrial Germany in the 1920s.

The inflation undoubtedly worked hardship on certain income groups also, although there were few people with literally fixed incomes. Farmers and merchants probably benefited at the expense of soldiers, artisans, and government employees, but this was not true in all places. The inflation also reduced the burden of debts and thus shifted real wealth from creditors to debtors. However, this shift was tempered in many states by the revaluing of debt claims to take account of the real value of the currency. The common contemporary view was that a depreciating currency would impose a burden on everyone who used it and that some rough justice would result in this manner.

A good evaluation of Revolutionary monetary experience is given by Professor Nussbaum,[6] who concludes:

> The effect of the Revolutionary inflation should not be overrated, especially when it is compared with the pernicious inflations of recent times. There were no savings or other depository banks in the fighting colonies and no bonds or shares exposed to inflation; also the state issues of paper money were partly saved. Losses were heavy and unfairly distributed; but all things considered, they were worth the sacrifices, and after victory was won they did not greatly delay the economic reconstruction of the country.

Bank of North America. The financial exigencies of the war also led to the founding of the first commercial bank of the modern sort—the Bank of North America, established in Philadelphia in 1780. Intended as an aid to war finance, it was chartered by Congress and initially capitalized in part with government funds. However its founders insisted that the bank keep its liabilities convertible into specie; this requirement limited its capacity to expand credit. Therefore its contribution to war finance and inflation was negligible. The government soon sold its stock, and the bank obtained a Pennsylvania charter and functioned thereafter as a strictly private institution. It was highly conservative in its policies and operated successfully until absorbed by another bank in 1929.

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[6] Arthur Nussbaum, *A History of the Dollar,* Columbia University Press, New York, 1957, p. 43.

Monetary Developments under the Confederation, 1783–1789. The national Congress in 1785–1786 established that the national monetary unit should be the dollar, with a series of decimal-fraction coins. This proposal, mainly devised by Thomas Jefferson, liberated American schoolchildren from the ordeal of reckoning in pounds, shillings, and pence. But aside from a few copper coins, no minting was done under the Confederation.

Expansion of the money supply came about elsewhere. In 1784 two more commercial banks were founded, in Boston and New York, respectively. Each resembled the Bank of North America in adhering to the commercial-loan principle, in issuing notes and deposits convertible into specie, and in banking on fractional reserves.

The most important economic developments of this period originated in the serious economic depression which befell the country in the mid-1780s. This depression resulted chiefly from the resumption of international trade after peace had been assured. Imports rose rapidly, while exports and shipping receipts did not—a fact blamed partly on British trade restrictions. In consequence, specie fled the country, and incomes and prices sank. Depression conditions led seven states to resume the issue of paper currency. Their purposes were varied—to relieve distressed citizens by making loans to them, to cover deficits when ordinary revenues fell, and particularly to finance payments of interest to holders of wartime public debt. As in colonial times, some of these issues depreciated seriously, while others behaved respectably. Between $2 million and $3 million were issued in 1785–1786 in a manner which indicated a return to the "currency finance" of the colonial period.

The unfavorable financial conditions in the 1780s provided many influences toward replacing the weak Articles of Confederation by a stronger national government. Merchants felt that a strong government could deal more adequately with the economic depression and international trade imbalance, perhaps through a tariff, perhaps through diplomatic measures to open foreign ports to American shipping and goods. Holders of public securities wanted effective payment of principal and interest. Security holders, merchants, and other men of property were also alarmed by the recurrent paper-money issues by states so soon after the inflationary experience of the Revolution.

Monetary Provisions of the Constitution. These financial ideas played an important part in the formulation and adoption of the Constitution, which brought an end to the "currency finance" system of the eighteenth century. The Constitution gave Congress the power to coin money and regulate the value thereof and forbade the state governments to coin money, issue bills of credit, make anything but gold and silver legal tender, or pass any law impairing the obligation of contract. The members of the convention were unable to agree on whether the Federal government might issue paper money. A provision to give it this power was stricken out, but some delegates stated their belief that such power was inherent in that of borrowing—a view ultimately sustained by the Supreme Court. But in 1787 and for the next seventy years, "money" meant gold and silver coins, for the Constitution put the country on a specie standard, at least nominally.

However, the Constitution said nothing at all about banking. Few delegates could foresee that the chartering and control of banks might become a means for state governments to bypass the prohibition on paper issues. The Constitution said nothing about chartering of corporations, and by omission it left this as one of the powers reserved to the states. This omission left the way open for subsequent ambiguity and obscurity in determining the powers of the Federal government over the banking system.

HAMILTON'S FINANCIAL PROGRAM, 1791–1811

The Public Debt. The Constitution provided the permissive framework for a national financial program, but it remained for Alexander Hamilton and the Federalists to enact its details in the 1790s. Hamilton's monetary policies were designed to make effective provision for the public debt and to provide a uniform and convenient national currency in adequate supply. Under the Funding Act of 1790, the Federal government agreed to issue new securities with guaranteed interest in exchange for the disorderly mass of interest-bearing obligations remaining from the war. A national tariff provided the funds to service these new securities.

The Bank of the United States. Closely linked with debt management was Hamilton's proposal for a Bank of the United States. Hamilton was greatly influenced by the example of the century-old Bank of England. He envisioned a bank where holders of the new Federal debt might turn in their government securities and receive bank stock in exchange. The prospect of sharing in bank profits would provide an incentive to buy up government securities for this purpose and would thus raise their market value, which was then substantially below par. Subsequently, the government securities would provide a safe investment for the Bank.

Hamilton also wanted the Bank established to expand the money supply and the availability of credit in order to stimulate the economy, encourage capital formation, and promote specialization and exchange. The Bank was also intended to help manage the government's receipts, payments, and cash balance; and it would be available as a potential source of loans to the Treasury.

The Bank was *not* proposed as a means of controlling the private banking system or of allowing the government to control or determine the money supply. There were in 1791 only three isolated banks, whose current monetary significance was slight and whose potential was unrecognized. Hamilton insisted that the new Bank, for all its connections with the government, must be fundamentally private. He wanted the government to own one-fifth of the stock, but as a source of revenue, not as an instrument of control. The Bank would be controlled by directors elected by the (domestic) private stockholders, and its loan and deposit transactions would be primarily with private business firms and individuals.

The Bank proposal was highly controversial and was largely responsible for the political split between Hamilton and Jefferson which led to the party division between Federalists and Republicans. The latter party attacked the broad construction of the Constitution implied by the Bank proposal and objected that the power of the government was being directed toward the benefit of merchants and speculators. Nevertheless, the Bank charter passed Congress in accordance with Hamilton's desires, and the Bank went into operation in December, 1791.

The Bank was capitalized at $10 million, which made it the largest American financial institution of its time, and it operated branches in most major port cities. Its charter forbade it to deal in commodities or real estate or to buy government securities in the open market. It could, however, lend to the government and did so on several occasions. It was permitted to issue notes (which the Treasury was bound to receive in payment) and deposits, both to be convertible into specie on demand. No explicit provision was made requiring specie reserves, although such was possibly the intent of a cumbersome and obscure passage limiting the amount of the Bank's "debts" to the sum of its capital and funds "deposited in the bank for safe keeping."[7]

Its charter was granted for twenty years. In operation, the Bank succeeded in achieving Hamilton's objectives to a considerable but unspectacular degree. It was conservatively managed, and its credit expansion was modest. Its notes did not enjoy much circulation beyond the merchants in major towns. By presenting for redemption notes of other banks, especially as received for customs payments, it helped keep those banks in check and also provided some elements of a clearing and remittance system. It occasionally extended credit to banks undergoing temporary stress. On the whole, it made no distinct contributions to the theory or practice of central banking.

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[7] See discussion in Bray Hammond, *Banks and Politics in America from the Revolution to the Civil War*, Princeton University Press, Princeton, N.J., 1957, pp. 131–141.

Coinage Legislation. The second part of Hamilton's program was to establish the national monetary unit on a metallic basis. He proposed a bimetallic system of coinage, with the dollar defined simultaneously in both gold and silver. A mint was to be established to coin either metal on behalf of private persons presenting it for coinage. The bimetallic system, in Hamilton's opinion, would be convenient in providing gold coins for large denominations and silver for smaller and would enlarge the total monetary circulation by relying on two metals rather than one.

Under Hamilton's suggestion, the Coinage Act of 1792, with some amendments adopted soon after, established the United States mint and defined the value of gold and silver coins. The law set the coined value of an ounce of gold equal to fifteen times an ounce of silver—Hamilton's estimate of the prevailing world ratio. Copper cents and half cents were also provided. Initially, even these were intended to be full-bodied coins, but the resulting coins were so monstrous that copper coins were placed on a subsidiary basis by providing that they should contain less than their nominal value in copper.

The government's role in coinage was essentially a passive one. It did not purchase gold and silver directly but merely stood ready to coin them if offered.

The coinage program ran afoul of several international difficulties. The market price of silver fell relative to gold, a condition that attracted silver to the mint and sent gold into export. Furthermore, in the absence of government prohibition, circulation of underweight foreign coins tended to drive full-weight American coins into foreign markets. Consequently, the mint's operations were largely ineffective in providing a circulation of good domestic coins.

Rise of Commercial Banks. After 1790, the number of commercial banks expanded rapidly. Pressures for more money and more credit were as strong as ever. As the states could not issue their own money, they chartered banks to do it instead. By 1811, eighty-eight banks had been set in operation by state charter. Each charter consisted of a special legislative enactment which customarily specified the limitations on bank operations. These restrictions usually included limits on capitalization and loans and required that liabilities be convertible into specie on demand. Although they did not explicitly require specie reserves, the charters generally sought the same objective by restricting assets or liabilities to some proportion of capital.

Legislative charter enactment soon became marred by political partisanship and outright corruption. Thus in 1799, when the New York legislature was under Federalist control, Aaron Burr and his associates succeeded in forming a Republican bank by the expedient of obtaining a charter for a water-supply company which included a clause authorizing bank operations. The Manhattan Company, thus formed, fulfilled its water-supply obligations conscientiously, but its chief function was banking, conducted successfully under the original name until its recent merger to become part of the Chase Manhattan Bank.[8]

Enforcement of the terms of charters was not strict. Commonly enforcement was left to private court action initiated by injured parties. Local courts and other authorities often tolerated evasions of convertibility or actually impeded efforts by noteholders to obtain specie. Since demands for specie redemption usually arose out of interregional transactions, such impediments reduced the usefulness of bank notes for transactions over any great distance. Although lax supervision opened the way for dishonest and incompetent bank operation,[9] most of the early banks were honestly and competently managed. They were generally owned and controlled by merchants and found it easy to adhere to the commercial-loan principle.

The Money Supply. Alexander Hamilton probably contemplated a national money supply consisting of full-weight gold and silver coins plus the notes and deposits of the national bank. However, the uniformity of the coinage circulation was impaired by the prevalence of foreign coins, and the national bank's monetary liabilities were soon greatly exceeded by those of other banks. The result was a monetary hodgepodge, a great variety of coins and notes of uncertain value.

Although the data are not very satisfactory, it appears that the money supply approximately doubled in the decade from 1790 to 1800 and again from 1800 to 1810, increasing over the twenty years from about $15 million to about $64 million. Prices rose substantially in the first decade, chiefly as a result of the European war, but declined slightly in the second. By 1810, the money supply was about 8 per cent of *GNP*, a proportion that does not seem to indicate excessive size or rate of growth. The principal monetary problem was quality, not quantity. The money supply in 1810 included about $15 million in specie, $28 million in bank notes, and $21 million in bank deposits. The United States thus rapidly reached a situation in which bank liabilities became the major component of the money supply.

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[8] *Ibid.*, pp. 149–158.

[9] The most notorious case was the Farmers Exchange Bank of Glocester, R.I., which Hammond calls "a sort of musical comedy bank." The bank became a tool of one Andrew Dexter, who purchased most of the stock by turning the bank's assets over to the former stockholders and then proceeded to borrow large sums on notes which provided that he should "not be called upon to make payment until he thinks proper, he being the principal stockholder and best knowing when it will be proper to pay." Dexter issued his bank's notes far from Rhode Island so that they would remain in circulation a longer time. He achieved this by note swaps with other banks as far away as Marietta, Ohio. When the bank finally collapsed in 1809, it had about $800,000 of note liabilities and $86 in cash assets. *Ibid.*, pp. 172–176.

WAR AND MONETARY CHAOS, 1812–1816

End of the Bank of the United States. In 1811 the charter of the Bank of the United States expired. From its inception, the Bank had been unpopular with Jefferson, Madison, and the Republicans. Besides, state banks and easy-money partisans among merchants resented its conservatism and restraint. Consequently, recharter was defeated by one vote in each house of Congress. The Bank went into liquidation in 1812. Its demise came at a singularly inappropriate time for the Federal government, which allowed itself to be drawn into war with Great Britain in mid-1812. Although the military significance of the war was minor, the financial dislocations which accompanied it were serious.

War Finance. Federal expenditures, which averaged about $10 million annually before the war, rose to more than $30 million in 1813–1815. Since tariff revenues fell off as war reduced trade and because public opinion opposed internal taxes—which were not collected until 1814—two-thirds of expenditures had to be covered by borrowing. Unfortunately, many of the wealthy merchants of the country (especially in New England) looked unfavorably upon war and the Madison administration and were not disposed to lend money to the government. The Treasury relied heavily on bank loans and on short-term interest-bearing treasury notes (many of which also went to banks). These notes were transferable and acceptable in payments to the government; many entered into circulation as a kind of paper money.

In response to government borrowing and the stimulus to the private economy resulting from the war, bank lending expanded rapidly. The money supply increased over 50 per cent during the war, and more than one hundred new banks were established. As the banks expanded credit, they found their holdings of specie dwindling through export or through movement to New England. Finally, in 1814, when the British burned the Capitol at Washington, a monetary panic broke out, and most of the banks outside New England ceased to redeem their liabilities in specie. This action removed any remaining restraint on the expansion desires of the banks, and their loans to private borrowers increased still further.

By late 1814, the financial situation was not very prepossessing. Prices had risen some 50 per cent since the beginning of the war because of government spending, private credit expansion, and impeded imports. The money supply of the country was a chaotic mass of inconvertible bank notes, circulating near par around their home but subject to discounts of 20 to 50 per cent at any distance. Therefore they were not very suitable for remittances from one place to another. Government securities were 20 per cent or more below par. Fortunately, in February, 1815, word was received in the United States that a treaty of peace had been signed at Ghent.

Postwar Monetary Reform. With the end of the war, Federal deficits were soon eliminated, and prices dropped as imports became available again. Resumption of international trade brought a period of great prosperity. European markets, still recovering from the Napoleonic Wars, were eager for American exports, and American imports shot up, financed in large part by credit from abroad.

Public opinion strongly opposed continuation of the existing monetary chaos. Strong demands were made that the Federal government restore the currency to convertibility into specie, impose some check on banking operations, and do something to improve the facilities for interregional payments. To achieve these goals, the government adopted a threefold program in 1815–1816. The treasury notes were withdrawn from circulation through tax payments or funded loans. The Webster resolution of 1816 directed the Treasury to refuse to accept inconvertible bank notes. Most important, the government in 1816 chartered the Second Bank of the United States.

THE SECOND BANK OF THE UNITED STATES, 1816–1836

Purpose and Structure. The new Bank resembled its predecessor in structure, except that it was larger ($35 million capital instead of $10 million) and had more branches (a maximum of twenty-five, including several in the interior). The Federal government again owned one-fifth of the stock, but this time also had the right to appoint five of the twenty-five directors. The Bank was to hold government funds, and its notes were to be accepted by the Treasury. Liabilities were to be convertible into specie. Capital subscriptions to the Bank could be made in government securities, a provision intended to raise their depressed market value.

Like its predecessor, the Second Bank was expected to function mainly as a private commercial bank, conducting a normal loan and deposit business with the public. However, the chief motive for its creation was to serve the public welfare. The Bank was given responsibility for managing Treasury funds and was expected to buoy up the market for government securities. But its public purpose went far beyond that of its predecessor: the Second Bank was explicitly intended as an instrument of monetary and banking reform and control. Secretary of the Treasury Alexander Dallas urged in 1815 that "the establishment of a national bank is regarded as the best, and, perhaps, the only adequate resource to relieve the country and the Government from the present embarrassments. . . . The national bank will conciliate, aid, and lead the State banks in all that is necessary for the restoration of credit, public and private . . . to enhance the value of the public securities and to restore the currency of the national coin."[10] Universal censure was directed at the refusal of banks to redeem in specie; they were blamed for the variations in note values and the impediments to interregional trade and payment. The chartering of a national bank was regarded as a means of returning to a specie standard. Paradoxically, there was a widespread hope that convertibility could be restored without the need for a contraction of money and credit, which many feared would produce a depression and distress.[11] Most current opinion was not very clear as to how the Bank was to reconcile these objectives, but Dallas's statement indicates that financial aid to the other banks plus a good example was to do the trick. Of course, once convertibility was restored, the Bank would help to maintain it by presenting bank notes for redemption.

In any event, the public purposes which were so evident in the debates on the Bank charter found no recognition in the charter itself. It was expected that such a bank, constructed on normal commercial principles and pledged to maintain specie convertibility, would automatically function to promote economic welfare. Thus no further standards of policy need be spelled out.

Panic and Depression, 1819–1824. The Bank commenced operations in 1817 under two serious handicaps. The management of both the parent bank and some of the branches was incompetent and in some instances corrupt. Within a short time it was revealed that officials of the Baltimore branch had diverted Bank funds to their private use. More serious, the economic responsibility imposed on the Bank was one which it did not have the power to fulfill. Since it could not coerce the state-chartered banks into returning to convertibility, it tried to induce them to do so by expanding its own loans to take pressure off the other banks. In this way a nominal return to convertibility was achieved in most places in 1817; but the state-chartered banks had very weak reserves and could promise convertibility only as long as few demanded it. Instead of contracting credit, they expanded. Demands for loans were particularly strong from people desiring to purchase land, in response to the booming export markets for American products (especially cotton). Numerous additional banks were established to meet this demand, particularly in the interior. In 1818, Kentucky chartered forty banks, known as the "forty thieves."

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[10] *American State Papers: Finance*, vol. III, p. 19.

[11] The reluctance of Congress to take extreme measures against nonredeeming banks was evident when it rejected a proposal in 1816 to levy a tax of 10 per cent on inconvertible bank notes.

Such credit expansion could continue, consistent with supposed specie convertibility, only so long as there was no substantial demand for specie, either for foreign remittance or domestic hoarding. When in 1818 the British corn laws restricted the import of grain from the United States and efforts to restore convertibility of the pound led to tight credit and deflation in Britain, imports from and loans to the United States were cut. The resulting deficit in the American balance of payments led in late 1818 to greatly increased demand for specie from American banks. The Bank of the United States, faced with heavy penalties if it did not maintain convertibility, immediately began to contract its loans drastically. Many other banks did likewise. But most state-chartered banks again ceased to redeem their liabilities in specie. Falling exports and tightening credit combined to throw the country's economy into the first of the notable nineteenth century panics. Commodity prices fell about one-third. Farmers suffered widespread distress from reduced prices and money incomes, imposed on a heavy burden of debt. Bankruptcy and liquidation were also widespread. The nation as a whole suffered as export prices fell much more than those of imports.

The political repercussions of the panic were extensive. The Bank was blamed for the whole thing, and its continued efforts to collect debts aroused in the interior parts of the country a hatred which it could never shake off. "The Bank was saved and the people ruined," said Jacksonian publicist William Gouge. Demands for relief of debts and for monetary expansion were addressed to all levels of government. Many state governments responded. Some chartered special banks, owned by the state, to expand credit and aid debtors who otherwise were in danger of losing their property. Laws were passed requiring creditors to accept notes of these banks or face difficulties collecting debts.

While the state governments were attempting to expand money and credit in order to reduce the woes of depression, the Federal government was predominantly on the side of deflation. While the Bank was busy extinguishing debts and reducing the money supply, the Federal courts struck down many of the state relief measures (though not the state-owned banks themselves). The administration, through Treasury Secretary William Crawford, resolutely defended deflation. In 1820, Crawford argued that although "all intelligent writers upon currency agree that where it is decreasing in amount, poverty and misery must prevail" and although "few examples have occurred of distress so general and so severe" as currently observed, still further contraction must occur until convertibility was restored. "The nation must continue to suffer until this is effected."[12] Federal policies, and particularly actions of the new Bank, were unduly lenient toward the banks during the period of expansion and inflation, then unduly harsh when deflation commenced.

The Heyday of Biddle. The serious phase of the depression gave way to relative stability through most of the 1820s. During this period the Second Bank emerged as a pioneering institution in the theory and practice of central banking under the leadership of Nicholas Biddle, who became its president in 1823. Biddle's understanding of the monetary aspects of domestic and international stabilization was strikingly modern. He accepted the role of the Bank as a public institution in which profits were to be subordinated to public service. He construed its public responsibilities to include the maintenance of a money supply nationally uniform and stable in value. The Bank operated in effect as a nationwide clearinghouse for bank notes received in payments to the Federal government. By presenting these notes for redemption, it held the individual state-chartered banks to strict convertibility; banks which did not pay specie found their notes refused by the Treasury. Biddle's policy was countercyclical; during a short-lived boom period in 1825, Biddle held the Bank's own lending in check and speeded up redemption of state-bank notes. When a collapse in Britain spread deflation to the United States later in 1825, the Bank loaned freely and relaxed the pressure on the state banks for redemption, even though its own specie reserves were declining. The Bank achieved these results without varying its discount rate or engaging in open-market transactions in government securities.

By extensive purchases of domestic bills of exchange, the Bank improved enormously upon the ease of making remittances from one part of the country to another. Through correspondent relations with foreign banks and through purchases of foreign exchange, the Bank operated to stabilize exchange rates and insulate the domestic economy from short-run instability in international payments. It worked closely with the Treasury, managing Treasury transactions and balances efficiently and frequently offsetting by credit variation the unsettling impact of Treasury surpluses or deficits. It was entirely appropriate for

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[12] *American State Papers: Finance,* vol. III, pp. 496–497.

Richard Rush, Secretary of the Treasury, to observe in 1828 that "a national Bank is the instrument alone by which Congress can effectively regulate the currency of the country."[13]

But the Bank's success in 1823–1832 arose precisely because it did not operate automatically as a normal bank. Its strength was as an instrument of discretionary policy; yet it was the very existence of discretionary power, rather than any abuse of it, which brought the Bank's downfall.

Jackson's War on the Bank. Andrew Jackson, soon after he was inaugurated as President in 1829, opened the attack on the Bank which ultimately led to its downfall. In December, 1829, Jackson reported to Congress that "both the constitutionality and the expediency of the law creating this Bank are well questioned by a large portion of our fellow citizens; and it must be admitted by all that it has failed in the great end of establishing a uniform and sound currency." A congressional report pointed out that these charges were unsubstantiated, and the issue rested with little agitation for the next three years.

Then in 1832 Jackson's opponents, led by Henry Clay, seized upon the Bank as an issue for the coming election. They pushed a bill through Congress to extend the Bank's charter, due to expire in 1836. Jackson vetoed the bill with a message that was a fighting campaign document. The Bank, he declared, enjoyed a monopoly position by virtue of its link with the government, a position which "operated as a gratuity of many millions to the stockholders." And who were these unworthy beneficiaries? "Foreigners . . . and . . . a few hundred of our own citizens, chiefly of the richest class." Jackson left no doubt that he believed the Bank charter designed "to make the rich richer and the potent more powerful." He concluded that the Bank was unconstitutional (despite the contrary finding of the Supreme Court), that the constitutional powers given to Congress extended merely to gold and silver, and that, in any event, "if they have other power to regulate the currency, it was conferred to be exercised by themselves, and not to be transferred to a corporation," which would thereby acquire a dangerous degree of irresponsible power.[14]

The monopoly charge was somewhat exaggerated, as the Bank generally accounted for only 10 to 20 per cent of the country's banking business. The attacks on stockholders were backwoods demagoguery of the purest sort. But Jackson did put his finger on the Bank's major defect: there was nothing in its structure to ensure that its operations would be in the public interest, a fact clearly demonstrated by its conduct in 1817–1821. Whether this could have been remedied short of extinction was a possibility not explored.

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[13] On Biddle's ideas and accomplishments, see Hammond, *op. cit.*, pp. 286–325, and Walter B. Smith, *Economic Aspects of the Second Bank of the United States*, Harvard University Press, Cambridge, Mass., 1953.

[14] James D. Richardson (ed.), *Messages and Papers of the Presidents*, vol. 3, pp. 1139–1154.

Politically, Jackson's veto was effective. He was reelected overwhelmingly, and his veto stood. The administration immediately set about removing Federal funds from the Bank and depositing them instead in state-chartered banks—the "pet" banks.

The assault on the Bank drew on many sources of strength, not all of them mutually consistent. Jackson's personal dislike reflected the traditional agrarian distrust of banks and the desire to restore a currency of gold and silver. But he derived much support from the desire for easier credit and less restraint by most of the state-chartered banks themselves and their mercantile allies. Another factor was the desire of the New York banks to wrest leadership from Philadelphia and particularly to obtain deposits of New York customs revenue. Finally, there was widespread antagonism to the Bank as violative of states' rights and representative of business aristocracy.[15]

Seldom have the dire predictions of the opponents of a public measure been so thoroughly fulfilled. When the Bank ceased playing its public role, the government lost all control over the quantity and quality of the money supply. The "bank war" was followed by a great expansion of bank credit, a monetary panic in 1837–1841, and serious economic depression lasting well into the 1840s. The Bank itself continued operations under a Pennsylvania charter but failed spectacularly in 1841 as a result of a grandiose effort to buoy up the economy by controlling cotton exports—an ill-appreciated atonement for the deflationary misdeeds of twenty years earlier.

The Bank's failure and the effectiveness of Jacksonian propaganda made restoration of effective central banking politically impossible for the remainder of the century. President Tyler finished the job by vetoing two successive bank-charter bills in 1841. It took a hundred years before Federal monetary policy again brought the banking system under really effective control.

THE HEYDAY OF STATE BANKING, 1833–1860

Monetary Policy and the Panic of 1837. The bank war and shift of Federal deposits to state-chartered banks coincided with a period of rapid economic upsurge, sparked by westward movement and land acquisition and improvement. Many state governments embarked on programs for transportation (chiefly canals) and banking, for which they issued millions of dollars of bonds, many of which were eagerly purchased by foreign investors. Cotton exports and prices boomed. The number of banks expanded rapidly, from about four hundred in 1833 to six hundred in 1836. Bank credit also increased greatly, stimulated by the Treasury deposits, and the money supply probably doubled between 1830 and 1836.

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[15] Hammond, *op. cit.*, p. 329.

The upsurge of money incomes and expenditures in the 1830s led to a great rise in imports, but American receipts from exports and security sales were so great that gold and silver flowed into the country—a factor which abetted the expansion of bank credit. In 1835–1836 wholesale prices rose about 30 per cent—a substantial inflationary movement.

The administration made some efforts to improve and control the monetary situation. The Treasury attempted to curb the issue of small-denomination bank notes by refusing to accept them in payments and halfheartedly urged the "pet" banks not to expand so much. In 1834 the coinage was revised in an effort to encourage more circulation of specie. Whereas the mint ratio of 1792 overvalued silver and thus drove gold out of circulation, the ratio was now overweighted in favor of gold. In a few years this overvaluation of gold produced the inevitable consequence that silver coins became scarce, thus encouraging the use of bank notes of very small denomination, which the administration particularly disliked.

As prosperity turned into an unwholesome speculative inflation, burgeoning imports and land sales caused Treasury funds to pile up in the "pet" banks. The national debt had been extinguished and the tariff reduced. In 1836 Jackson's famous "specie circular" required that all subsequent purchases of public lands be paid for in coin, and Congress voted to distribute the surplus Federal funds among the state governments. Both measures caused an upheaval among the banks and increased the demands on them for specie. A few weeks later the Bank of England raised its discount rate to curb the outflow of gold. Early in 1837 the price of cotton fell, setting off commercial failures and a banking panic which spread throughout the United States. An adverse turn in the balance of international payments, plus domestic hoarding, increased the demand for specie at a time when the banks had permitted their reserves to fall too far. Most banks quickly suspended specie payments, and credit began to tighten.

Despite an abortive economic revival in 1839, the country drifted gradually into a serious and long-lived depression. As European capital ceased to flow in, the ambitious state projects halted, and private capital formation dwindled. As bank assets went bad, many banks failed —probably one-fourth by number. The money supply, which exceeded $250 million in the mid-1830s, fell to about $170 million in 1841–1842. Wholesale prices fell about 40 per cent from 1837 to 1843, and the price drop brought with it a debt crisis and widespread bankruptcy and liquidation, as in the early 1820s. State governments did not repeat their experiments with special relief banks, but many refused to put pressure on their chartered banks to return to specie redemption and thus enabled the banks to be more lenient with their debtors.

The Independent Treasury System. Federal financing provided some monetary relief, as the deficits produced by falling revenues were financed largely by issuing near-money treasury notes which circulated somewhat as money; but most Federal influence was directed toward deflation. The unhappy "pet" banks were dunned unmercifully to repay the Treasury funds, and President Van Buren urged Congress to enact a law under which any bank that refused to redeem in specie would be put into bankruptcy. Like Secretary Crawford twenty years earlier, he believed that convertibility was the ultimate touchstone of banking policy, whatever suffering it might inflict. Fortunately, such a measure did not pass.

Van Buren proposed a less extreme measure which eventually was adopted in 1846—the Independent Treasury System. Under this setup, the government was to have no more to do with banks. It would collect its funds in gold, silver, or treasury notes and keep them in its own vaults. The chief motive was simply to safeguard government funds, but some proponents argued that the System would also have some regulatory effect on banks. Indeed, a few recognized that specie would tend on balance to flow into the Treasury during booms and out again in depressions and would thus exercise a stabilizing influence.

The System was in operation in its pure form for about fifteen years. It was far superior to reliance on "pet" banks in managing Treasury funds or checking bank credit expansion, but far inferior to the Second Bank. Under the Independent Treasury, the Federal government relinquished all concern for the *quality* of the money supply as a whole. Automatic flows of specie did exercise some stabilizing effect on the *quantity* of credit, but not much. During booms, the banks were inclined to let their reserves dwindle, and loss of specie into the Treasury did not deter them. During depressions, contraction was dictated by adverse expectations. The Treasury did absorb specie during the prosperous mid-1850s and released it during the panic of 1857, which had some stabilizing tendencies.

Banking Developments. As population, production, and settlement expanded, the number of state-chartered banks grew rapidly, and by 1860 there were more than 1,500 banks. Virtually every bank issued notes, although by 1860 deposits were a slightly larger component of the money supply.

The banking situation had several highly unsatisfactory aspects, which can be summarized as follows:

1. *Quality of money supply.* The country's money consisted chiefly of the notes and deposits of an enormous number of small local banks. Counterfeiting was also common, as was the issue of notes by fraudulent or incompetent banks that had no intention or capacity to honor them. Notes were completely unstandardized.

2. *Geographic inadequacy.* In self-protection, many people refused to handle notes other than those of well-known near-by banks. This reluctance made bank money very unsatisfactory for remittance over a distance. The Second Bank had facilitated interregional remittance by means of its own notes and deposits, by clearing checks and notes paid to the government, and by selling domestic exchange. As time passed, many state banks developed mutual correspondent relations which furnished clearing and redemption facilities. The Suffolk Bank in Boston pioneered in establishing a regional clearinghouse for bank notes. By 1860 many banks kept deposit balances with the New York banks, who acted as redemption agents for the notes of their out-of-town correspondents. However, clearings were slow and uncertain in many areas, and interior banks developed many tricks to avoid having to redeem their notes.

3. *Perverse quantity variations.* Although it would be unfair to blame nineteenth century economic fluctuations solely on the banks, they consistently aggravated them. During booms, the banks expanded loans. Expectations were favorable and demands for specie redemption small, since boom periods generally witnessed high capital inflow and a favorable balance of international payments. Then boom seemed inevitably to give way to panic, in which the banks would "pile on" in the downward direction and thereby make depression worse.

4. *Failures and suspensions.* Although data are fragmentary, there is no doubt that the pre-1860 banking system was subject to a high rate of failures which imposed losses on noteholders, depositors, and stockholders. Contemporary opinion tended to direct more censure at the periodic general suspensions of specie convertibility which occurred in 1814, 1819, 1837, and 1857. But such suspension was a safety valve which enabled the banks to refrain from aggravating deflationary pressure during recessions. Devotees of convertibility such as Crawford and Van Buren might have worsened the quantitative instability of the money supply if they had had their way. General suspensions were the best evidence of the fact that the banking system as a whole faced a serious liquidity problem. In a crisis, there was no way in which the banks as a group could obtain substantial amounts of additional cash, and periods of stringency tended to degenerate into a tug of war in which multiple credit contraction occurred without really relieving the banks' cash positions.

State Banking Regulation. A wide variety of policies by individual states attempted to deal with some of these problems. Numerous states adopted effective supervisory agencies and required disclosure of bank affairs, which helped secure honesty and competence. In 1842 Louisiana adopted for both notes and deposits a requirement of specie reserves which was high enough (one-third) to safeguard their liquidity effectively. New York pioneered in 1829 in establishing the "safety-fund" system, under which assessments from each bank were pooled into an insurance fund for bank liabilities. Although the principle was a forerunner of the FDIC, the financial details were not very satisfactory, since the sound and conservative banks ended up footing the bill for others. It reduced losses from bank failure but proved incapable of dealing with the numerous failures of depression years and was discontinued.

New York introduced another innovation in 1838—"free banking." This replaced the former system of special legislative charters with a general incorporation law under which state banking authorities could grant charters to qualified applicants. To safeguard the public, the law required that note issues be secured by depositing with the state approved bonds or mortgages of equal or greater value, which could be sold to meet redemption claims if necessary. While banking standards in New York did not suffer under this program, its application in such other states as Michigan, Indiana, and Wisconsin led to a proliferation of bad banks as the authorities granted charters too liberally.

Some states established government-owned and -managed banks, sometimes to the exclusion of privately owned banks. Such ventures were highly successful in South Carolina and Indiana, but in Alabama, Kentucky, and some other states they degenerated into printing presses for financing government deficits or expanding loans unduly and ultimately failed. A few states prohibited chartered banking entirely—chiefly Western states such as Iowa and California; but they could not prevent circulation of notes from other states. In addition, unincorporated banks frequently conducted deposit business and even issued notes on occasion.

State policies thus exhibited the greatest possible variety. In many areas they worked well to improve the honesty and competence of banking and reduce failures. They did not secure national uniformity, provide for interregional remittance, or put any real limits on the perverse variations in the volume of money and credit. From the various ideas tried by individual states emerged most of the elements of subsequent Federal policy.

Coinage Modifications. The discovery of gold in California and the subsequent high output changed the orientation of coinage policy. The

United States was no longer dependent on imports for its specie supply. As we noted, the Coinage Act of 1834 slightly overvalued gold relative to silver, and in the 1840s silver coins became increasingly scarce. In order to restore the circulation of smaller silver coins, Congress in 1851 and 1853 applied to silver the principle of subsidiary coinage by reducing the metal content of small coins below their monetary value. The director of the mint was authorized to buy silver in the open market to be coined. However, silver dollars remained full-bodied and could be coined without limit; but none were coined at that time, since their metal value was higher in the open market. In 1857 another long-overdue reform was adopted—the circulation of foreign coins was forbidden.

The legislation of the 1850s created most of the coins with which we are familiar. Although the silver dollar had attained its present weight and fineness in 1837, the act of 1853 established the dime, quarter, and half dollar, and the small copper-nickel cent was added in 1857. With the creation of the copper-nickel five-cent piece in 1866, our present roster was completed—although such items as half-cent and three-cent coins continued in use until later. Of course, the designs on coins have been changed since then.

SUMMARY AND GENERAL OBSERVATIONS

The American colonies prior to the Revolution passed through two monetary phases. In the seventeenth century, many of them experimented with types of commodity money, including nails, tobacco, and wampum. In the eighteenth century, many colonies developed systems of government paper money, issued to finance war deficits or to make loans during economic depressions. Some of these currencies were successful, some were not; but the efforts of the British government to suppress them were much resented in the colonies.

The Revolutionary War was financed largely by issues of paper currency by the Congress and the states, issues on such a scale as to generate hyperinflation in 1778–1781. Most wartime issues were ultimately redeemed at a tiny fraction of par. After the war, several states responded to the serious economic depression by new paper issues. At the same time, the first commercial banks went into operation.

The postwar depression and paper issues were among the many financial factors underlying the adoption of the Constitution in 1787, which ostensibly gave the Federal government a monopoly of monetary issue and control. Under Alexander Hamilton, Federal monetary policy created the First Bank of the United States and embarked on a bimetallic standard of coinage. However, state-chartered banks grew in number and soon dominated the monetary system.

This became a serious problem during the War of 1812, for wartime Federal financial policies combined with private credit expansion to cause serious inflation and monetary disorder. To bring this situation under control, the Second Bank of the United States was chartered in 1816. However, it contributed to overexpansion of credit, and when an adverse balance of international payments triggered the panic of 1819, the Bank earned much unpopularity by its strong contraction of credit.

Subsequently, under Nicholas Biddle, the Bank developed into a sophisticated and valuable monetary instrument; but it was politically vulnerable and fell victim to the opposition of Andrew Jackson. The demise of the Bank opened the way to another banking debacle in the 1830s, culminating in a serious panic and depression after 1837. Under the Independent Treasury System, the Treasury reduced its dealings with banks to a minimum, and such detailed regulation and control as occurred came from the varying policies of state governments.

The monetary standard went through several variations. At first, silver circulated; but after revision of the mint ratio in 1834, silver disappeared and gold circulated. In response to this change, Congress created a subsidiary coinage of small silver in 1851, which finally achieved concurrent circulation of both metals. But throughout the nineteenth century, specie circulation was far smaller than bank liabilities.

By 1860 the banking system had many shortcomings: excessive diversity of money types of uncertain quality and limited interregional use, a perverse movement of the quantity of money and credit over the business cycle, and an undue tendency to bank failures and panics.

Between 1790 and 1860 the American economy came of age in one important sense—though still primarily agricultural, it became a national market economy, in which the use of money predominated in transactions. Technical developments in transportation and agriculture did much to promote this transition. The growth of the money supply and of bank credit contributed importantly to the spread of the market and to capital formation.

The money supply increased from about $15 million in 1790 to nearly $600 million in 1860—an increase of about fortyfold. In the process, the ratio of money to *GNP* increased from about 4 per cent to about 12 per cent—still far below its recent level. Although the short-run variations in the money supply were ill-timed cyclically, this long-run growth was beneficial in encouraging the spread of the market economy, specialization, and exchange. It is of particular importance that this enormous growth in the money supply did not cause an upward trend in prices, which were approximately the same in 1860 as in 1791. Indeed, the trend of prices was predominantly downward from 1815 until 1850, despite the banking expansion.

Although the corporation as a form of business was common in banking and transportation, most of the nation's business was done by unincorporated business and farms. In the seventy years before 1860, these accounted for about $7 billion of net capital formation, mostly through direct effort or reinvested income of the owners. By 1860 there did exist a financial system to aid saving and investment. There was a securities market, handling mostly bonds or rail shares; a life insurance industry with about $160 million of policies in force; and savings banks with deposits of about $150 million. The major financial institutions were the commercial banks, whose credit expansion furnished about 10 per cent of the capital formation of the period and whose assets totaled about $850 million.

QUESTIONS FOR STUDY

1. In advocating a bimetallic standard in 1791, Alexander Hamilton argued that "to annul the use of either of the metals, as money, is to abridge the quantity of circulating medium. . . . " Was he correct?
2. "Although the American economy before 1860 was subject to great economic instability, this did not reduce economic welfare because production and employment were not substantially affected." Discuss.
3. "Given the condition of the economy before 1860, to insist that banks redeem their liabilities in specie was bound to lead to economic instability." Discuss, with particular reference to the balance of international payments.
4. Under the system of bimetallism established in 1792, both gold and silver coin were full-bodied and had monetary values in a ratio of 15 to 1. If the ratio of gold to silver prices in the world market diverged very far from this ratio, one metal or the other would disappear from circulation. Explain how this would occur if the world price per ounce of gold were fourteen times that of silver; if it were sixteen times silver.
5. The coinage legislation of the 1850s resulted in part from the great increase in gold output. What was the connection?

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CHAPTER 15

MONETARY AND BANKING DEVELOPMENTS IN THE UNITED STATES 1861–1913

THE CIVIL WAR, 1861–1865

Economic and Financial Background. The outbreak of hostilities between North and South brought with it serious economic and financial disruption. The South was the chief source of the country's export earnings but depended for much of its consumption goods and credit on Northern sources. Secession cut an extensive network of interregional trade and credit relations to the detriment of both sides.

The Northern economy was more productive and more industrialized, but its resources were so inefficiently used by the government that it took three years before the superiority really began to tell. The Federal government was hopelessly unprepared for war. Its military forces were small, inefficient, and filled with Southern sympathizers. Federal finances were still in disorder from the panic of 1857. The only source of tax revenue was the tariff; no internal taxes had been collected for forty years, and no administrative system existed to collect them. The Southern states suffered even more from administrative and financial difficulties but overcame them for a time through superior quality of military leadership.

The Civil War, like its predecessors, brought drastic changes to the American monetary and banking system. The most dramatic short-run effect was a great enlargement in the quantity of money and inflation of prices. The important long-run effects were the creation of the National Banking System and a permanent Federal paper currency.

The Federal government's basic problem was to find funds to cover the enormous increase in expenditures. Federal spending rose from about $60 million in the year ending June, 1861, to more than $1.2 billion in fiscal 1865, and total expenditures in 1862–1865 came to about

$3 billion. Despite the imposition of a wide variety of commodity taxes and an income tax, only $900 million of tax revenue was received, leaving more than $2 billion of deficit financing.

Secretary Chase. Financial leadership during the war was exercised by Salmon P. Chase, Secretary of the Treasury. His financial ideas reflected the influence of Jefferson and Jackson. Since he opposed formation of a central bank, this expedient was never seriously considered; but he disliked and distrusted the state-chartered banks as well. He was also opposed to creation of a large long-term national debt, particularly if it bore high interest. Although Chase believed strongly in a monetary system based on coin, his attitudes toward banks and the national debt led him ultimately to support the issue of government paper currency and sponsor the formation of the National Banking System.

Since a short war was anticipated, the government relied chiefly on loans and treasury notes as in the War of 1812—which meant large use of bank credit. Chase insisted, however, that proceeds of loans be paid to the Treasury in specie rather than in deposit credits. At the same time he used the threat of government currency issues to pressure the banks into lending freely to the government and asserted that he was ready to issue currency "until it takes a thousand dollars to buy a breakfast," if this expedient were needed to win the war. In 1861 the Treasury issued its first paper currency, consisting of treasury notes payable in coin on demand.

Chase was quite willing to rely on bank credit if it could be obtained under proper circumstances. He made these circumstances clear in his report of December, 1861, in which he first proposed a national banking system to bring bank-note issues under control and provide a ready market for government bonds.

A few days later most of the banks suspended specie convertibility. The immediate stimuli were the unfavorable condition of national finances and the threat of war with England, but suspension was bound to come as bank loans to the government expanded their liabilities beyond the normal relation to specie reserves. The suspension provided the decisive influence for Federal reliance on currency finance. Many officials felt that if the war was to be financed by creating inconvertible paper money, the government might as well issue it instead of paying interest to the banks for it.

The Greenbacks. After the banks' suspension of convertibility, the congressional committee considering Chase's banking bill turned instead to a bill for Federal legal-tender currency. The majority opinion in Congress preferred this measure to selling bonds at ever-increasing yields, and in February, 1862, despite predictions of price inflation and distress, a bill authorizing $150 million of legal-tender notes was adopted. These notes were not convertible into specie but could be exchanged at par for 6 per cent bonds payable in gold and redeemable after the war. To support these bonds, the bill provided that customs revenues should continue to be paid only in specie. This put the government on a double standard, using moneys of different values for different transactions.

The continued inadequacy of tax revenues and loans brought repeated resort to further creation of greenbacks, and by 1863 the total authorized issue reached $450 million. After that, no further increase occurred.[1] The rapid increase in the volume of inconvertible currency and deposits soon raised the price of specie and created a shortage of small silver coin. In 1862 the government authorized the use of postage stamps as currency and in the following year created a new issue of "fractional currency"—paper money in denominations smaller than one dollar.[2] A tax of 10 per cent was imposed on privately issued fractional notes to drive them out of circulation.

Besides the greenbacks, the Treasury continued to rely on short-term debt issues with monetary significance. In 1863, when further greenback expansion ceased, the Treasury shifted to the issue of interest-bearing legal-tender notes with maturities of one to three years. Although these circulated somewhat as currency, their chief significance arose from their use as bank reserves. Their legal-tender status enabled banks to use these notes and greenbacks in redemption of their liabilities without violating laws which required specie convertibility in many states.

Long-term bond issues played a distinctly secondary role in wartime finance. In fiscal years 1862 and 1863 they accounted for only one-fourth of deficit finance and were issued chiefly through conversion of greenbacks. However, in fiscal 1864 Chase permitted the banking firm of Jay Cooke to undertake a wide campaign for mass distribution of bonds, which was highly successful and financed two-thirds of that year's deficit. In 1865 the emphasis shifted back to short-term interest-bearing notes, and the share of long-term notes dropped back to 40 per cent. By that time, the enlarged money supply made it easy to sell interest-bearing securities, and the Treasury was able to keep the interest rate from rising above 6 per cent.

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[1] In 1864, after resigning from the Treasury, Chase was appointed Chief Justice of the Supreme Court. Despite his role in bringing the greenbacks into existence (his picture was on the one-dollar bill), he led a divided court in holding in 1870 that the legal-tender provisions were unconstitutional. President Grant hastily appointed two additional judges to the Court and the decision was overruled in 1871.

[2] In 1864, at Chase's urging, the legend "In God we trust" was placed on coins. When someone suggested to President Lincoln that it be engraved on greenbacks as well, he replied, "If you are going to put a legend on the greenbacks, I would suggest that of Peter and John: 'Silver and gold have I none, but such as I have I give thee.' " Carl Sandburg, *Abraham Lincoln: The War Years,* Harcourt, Brace and Company, Inc., New York, vol. II, 1939, p. 194.

The National Banking System. The objective of banking reform was in Chase's mind from the start, but it was not until 1863 that public indignation against the banks' suspension of convertibility and inflation, plus the problem of selling government bonds, brought the adoption of the National Banking Act. The law was completely revised in 1864, and its objectives were completed in 1865 when a 10 per cent tax was imposed on all notes of state-chartered banks. Its details will be discussed later in connection with the postwar economy. Briefly, it offered national charters to individual commercial banks, who would be authorized to issue national-bank notes, a uniform paper currency to be backed more than 100 per cent by government bonds. National banks would be subject to legal reserve requirements and to national regulation and inspection. It was hoped that the note-security provision would encourage extensive bond purchases by banks; but they were slow to join the System, and only about $100 million of bond sales were made for backing notes by 1865. The chief significance of the System was as a structural reform of the banking system.

Civil War Inflation. The inevitable tendency of wartime financial policy was to enlarge the money supply and the volume of *GNP* expenditures. On rough estimate, the money supply of the Northern states increased from about $600 million in 1860 to about $1.5 billion in 1865.

Although increased employment and imports helped enlarge the amount of goods available, the main effect of rising demand was to drive prices up. The annual index of wholesale prices rose from a base of 100 in 1860 to a peak of 221 in 1864. Monthly data reached a high of 242 in September, 1864. Consumer prices in 1864 averaged 78 per cent above 1860. Wage rates lagged considerably behind prices, and by 1864 real wages had fallen about one-third from prewar levels. However, this condition rectified itself rapidly after hostilities ceased. Similarly, recipients of rent, interest, and other fixed incomes and soldiers and other government employees lost real income for a time at least. By contrast, the inflation benefited profit recipients. Speculative opportunities abounded during the war, particularly in selling to the government, and the times produced a number of "shoddy millionaires."[3]

[3] Wesley C. Mitchell, *A History of the Greenbacks,* University of Chicago Press, Chicago, 1903, pp. 239–402. Additional price data are from *Employment, Growth, and Price Levels, Hearings before the Joint Economic Committee,* United States Congress, 1959, pp. 395–397 (material of George R. Taylor and Ethel D. Hoover); and from George F. Warren and Frank A. Pearson, *Prices,* John Wiley & Sons, Inc., New York, 1933, p. 12.

Although traditional discussions of war finance put most of the blame for the inflation on the issue of greenbacks, the real root of the inflation was the large Federal deficits. Had the government not issued currency, it would most likely have borrowed more heavily from banks, as in the War of 1812. This action would have forced the banks to suspend convertibility, and inflation would have resulted as bank notes and deposits expanded. In many ways, Chase's preference for government paper over bank credit seems logical. The Civil War was one of the most honestly financed wars in American history. There was no subterfuge about the fact that it was being done by enlarging the money supply, and everyone knew where to put the blame for inflation.

Inflation in the South. In the South, monetary conditions were much worse. The area lacked industrial resources, and its access to them through trade was seriously impeded by blockade. Since the rebellion was (like that of 1775) directed in part against centralized control and objectionable taxation, the Southerners found it hard to develop effective taxation and central financing. Confederate expenditures exceeded $2 billion during the war, but less than 10 per cent of this came from taxation. Of the remainder, about $1.1 billion came through issue of paper currency and the rest from security issues (which served chiefly to return that currency to the government).

The money supply in the South, which was slightly under $100 million at the beginning of the war, rose steadily to about $1.2 billion in April, 1864. By that time the price level was about forty-five times that of early 1861. Inflation was spurred by the decline in output from prewar levels and by rising velocity.

In February, 1864, the Confederate government adopted a drastic monetary reform. Holders of most existing currency were given a limited time to exchange the notes for 4 per cent bonds at par or for new notes at a rate of $2 new for $3 old. After January 1, 1865, the old notes were to become worthless by imposition of a 100 per cent tax (though this was never carried out). Sales of other bonds were stepped up, and no further note expansion was made to finance expenditures. The reform had a double effect. At first, it caused a great rise in the velocity of the old notes in anticipation of their loss of value. Prices rose from an index of 2,800 in January, 1864, to 4,575 in May. Then prices began to fall as the currency was reduced. For most of 1864 they remained stable around 4,100. By October the money supply had been reduced by about $250 million. But in December, 1864, the old notes were validated again and their compulsory exchange postponed. Whether the government issued further notes is not clear, but in any case the price level began to shoot upward. In the final months of the war, as the economy disintegrated, velocity rose, available goods nearly vanished, and the price index soared from 4,285 in December, 1864, to 9,200 in April, 1865. After the surrender, of course, the notes became worthless.[4]

POSTWAR DEVELOPMENTS

Economic Conditions. Although the Civil War reduced the nation's output below prewar levels for a time, the postwar period was marked by an almost unbroken upward trend of production, which by 1914 was about seven times as great as in 1870. During this period, the United States was largely transformed from an agricultural to an industrial nation. Population tripled under the spur of mass immigration. With industrialization came the rise of the corporation, which contributed to capital growth and technological progress but also furnished a vehicle for financial abuse and monopoly.

International economic relations continued important. Economic development was aided by a high level of capital imports, while United States farm products moved into export markets on a large scale. These developments rendered the United States vulnerable to shocks of outside origin.

For the greater part of the period, the economy passed through a long and grinding deflation, the aftermath of the inflationary surge of the Civil War. Deflation fell with particular impact on farmers, whose products led the decline and who, under the influence of the Homestead Act and railroad extension, had incurred heavy debts to expand the area of cultivation in the West. Their pleas for relief and the resistance from defenders of the financial *status quo* provided the theme for the monetary developments of the period.

The embellishments and counterpoint to this theme came from the periodic monetary panics which occurred in 1873, 1884, 1890, 1893, and 1907. These panics were largely a product of certain characteristics of the National Banking System, to which we must now turn.

Structure of the National Banking System. The national banking legislation of 1863 and 1864 attempted to reform the banking system by applying a number of techniques previously used by individual states, including free banking, notes backed by bonds, and reserve requirements. Membership was voluntary, but it was hoped that the note-issue privilege would attract many volunteers. When this did not occur, the 10 per cent tax was imposed on state-bank note issues in 1865. The chief provisions of the System were as follows:

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[4] See Eugene Lerner, "The Monetary and Fiscal Programs of the Confederate Government, 1861–65," and "Money, Prices, and Wages in the Confederacy, 1861–65," *Journal of Political Economy*, December, 1954, and February, 1955; Richard C. Todd, *Confederate Finance*, University of Georgia Press, Athens, Ga., 1954, pp. 25–120.

1. *Charter.* The Federal government offered to grant charters to individual commercial banks meeting certain standards relating to capital, assets, and reserves.

2. *Notes.* National banks were authorized to issue notes which were to be uniform in design and accepted at par by all national banks and the Treasury. Notes were to be redeemed on demand in legal-tender currency. No bank was to issue notes in excess of its capital, and total issues were limited to $300 million. (This limit was raised in 1870 and removed in 1875.)

2a. *Note security.* Notes were to be printed and distributed by the Treasury only when a bank had deposited with the Treasury United States securities equal in value to at least 111 per cent of the notes. If the bank became unable to redeem notes, the bonds might be redeemed or sold to provide funds for that purpose.

3. *Reserve requirements.* National banks were required to hold reserves against both notes and deposits. The law of 1864 set the basic requirement at 15 per cent of notes and deposits. Of this three-fifths could be held in the form of a deposit with another bank in any of nineteen listed reserve cities, while the remaining two-fifths was to be cash in vault. However, banks in the reserve cities were obliged to hold 25 per cent reserves. At first all their reserves were required to be in cash, but in 1874 they were permitted to hold up to half their reserve in deposits with New York banks. Banks in New York (and subsequently Chicago and St. Louis, when added to the central reserve city category) had to keep their 25 per cent of reserves in cash. Thus a pyramid structure was created, in which country banks held funds with reserve city banks, and the latter with central reserve city banks.

Reserve requirements applied initially to both demand and time deposits as well as to notes. However, in 1874 notes were exempted, and instead banks were required to keep with the Treasury a redemption fund equal to 5 per cent of notes outstanding. The vault-cash requirements could be met by various classes of government notes, including some which bore interest.

4. *Other provisions.* National banks were obliged to meet minimum capital requirements ranging from $50,000 upward, depending on location. Their stock was subject to double liability—stockholders could be assessed for an additional amount equal to the par value of their stock if needed to meet creditors' claims. The banks were forbidden to lend on real estate—a provision which made them unpopular with farmers. Issue of charters and supervision and examination of banks were delegated to the office of Comptroller of the Currency newly created in the

Treasury Department. The Treasury was permitted to use national banks as depositories for public funds.

The National Banking System reversed the laissez-faire attitude of the government and provided remedies for several of the defects of the prewar situation. It thoroughly reformed the bank-note currency and provided a nationally uniform note of undoubted value and validity, while the punitive tax ended forever the chaotic jumble of state-bank note issues.

On the other hand, the System had grave defects, which were amply revealed after 1865. Note issue and reserve requirements were unduly rigid. There was no provision to meet seasonal variation or secular growth in the demand for notes or for credit. Indeed, by tying the note issues to the national debt, the System unintentionally forced the note circulation to decline as the debt was reduced. The System provided no way in which the banks as a group could obtain additional liquidity in a crisis, and by relying on interbank deposits as reserve, it encouraged a false sense of liquidity for individual banks. The interbank deposits also served as a transmission line carrying panic from one bank to another. The System proved extremely vulnerable to panics, and it did little to improve the safety and convenience of checking deposits.

The National Banking System was designed as a structural panacea. No government agency was given any discretionary power to vary the quantity of money and credit. As a consequence, the banks persisted in their normal pattern of expanding money and credit during booms and contracting during depressions.

THE POSTWAR CURRENCY CONTROVERSY, 1865–1879

Contraction and Its Opponents. When the greenbacks were issued, there was wide expectation that they would go out of use after the war —"that greenbacks and volunteers would be disbanded together," as one businessman put it—especially since the National Banking program had provided for a proper paper currency. The bank-note tax was effective; by 1866 most state-bank notes had disappeared, and by 1868 only about 250 banks remained outside the national system, compared with over 1,600 which had joined.

Whether or not the greenbacks should be abandoned entirely, there was widespread conviction that the various forms of paper currency should be restored to convertibility into gold. If this were attempted without withdrawing the greenbacks entirely, it would impose novel and difficult responsibilities on the Treasury, which would have to accumulate and maintain a gold reserve much like a central bank. Obstacles to restoring convertibility at the end of the war were serious:

the dollar was about one-third below its former gold parity (and no one questioned the propriety of returning to that value), and American commodity prices were much above world levels. Had the government merely restored convertibility by decree, there would have been a rush to import and a stagnation of exports. Whatever gold the Treasury held would have been drained off quickly, and convertibility would have been short-lived. If the old gold parity was to be restored, it would also be necessary to restore a normal relation between American prices and those in existence elsewhere. It would also be necessary to build up a bigger gold reserve than the Treasury was accustomed to hold and, quite probably, to reduce the volume of greenbacks in circulation.

In 1865, Secretary of the Treasury Hugh McCulloch recommended that some greenbacks be withdrawn by the sale of additional bonds. The House of Representatives overwhelmingly approved by resolution the objectives of contraction and a rapid return to specie convertibility. Such unanimity was short-lived, however. The declining price level aroused increased opposition to further currency reduction. In consequence, the return to convertibility was postponed until 1879, and the currency problem aroused much controversy in the interim.

Wholesale prices moved steadily down from an index of 221 in 1864 to 143 in 1871. Several deflationary forces were at work: The Federal government's fiscal position shifted from deficits to surpluses, and the freer flow of imports (aided by revival of Southern exports) reduced prices of competing products. Domestic output, particularly of farm products, expanded rapidly. And the combined operations of Federal surpluses and bond sales pushed the money supply down, while the reuniting of the sections and demobilization increased the volume of private transactions in which it was needed.

The adverse effect of falling prices on farmers, merchants, and other debtors, plus a general recession in business in 1866, aroused great opposition to further monetary contraction and created pressure for reversal of the trend. In consequence, Congress in 1868 forbade further reduction in the supply of greenbacks. Monetary policy was an active issue in the election campaign that autumn. Many Democrats advocated the so-called "Ohio idea" that all Federal bonds not explicitly calling for gold payment should be paid in greenbacks. Most of the bonds had been sold for greenbacks initially, and with falling commodity prices, bondholders would still receive in return more purchasing power than they had originally lent. But the Democrats were defeated, and gold payments were retained for all bonds.

At the end of the war, the interest-bearing Federal debt totaled about $2.4 billion. Congress was not eager to create still more bonds to redeem currency on which the government paid no interest and preferred to use surplus revenues for redemption of interest-bearing securities instead of redeeming currency.[5]

Advocates of rapid contraction and return to convertibility were thus in the minority and on the defensive. Many conservatives preferred a policy of gradualism, to wait for an improvement in the international balance and in the Federal debt and budget position. At the other extreme, a vocal minority favored currency expansion and wanted it done by the government, not the banks.

The Panic of 1873. Although prices continued gently downward, the period following 1867 was one of prosperity and enterprise. Railroad building, Western settlement, and expansion of farm production went hand in hand, while industrial investment was also high. The boom was supported by a substantial inflow of foreign capital.

Bank credit expanded with the boom. National banks had abundant excess reserves and increased their loans and investments by $200 million from 1867 to 1873, by which time they were close to their reserve limits. The period also witnessed a revival of state-chartered banks. Many of these were tiny banks in rural areas, with capital far below the national banking standard. These new banks operated through deposit business and reconciled themselves to inability to issue notes. By 1873 there were about five hundred state-chartered banks with assets exceeding $300 million.[6]

In 1873 the boom ended in a financial panic which developed into a painful depression. Railroads and capital-goods industries had reached levels of investment too high to be maintained at existing rates of growth in demand. In 1872, high imports and reduced exports produced a deflationary force. In 1873 discovery of frauds in the construction expenditures of the Union Pacific and the attendant failure of Jay Cooke's banking firm set off a banking and securities panic. The panic was symptom rather than cause, however; the subsequent depression was serious because of the high previous rate of investment and the depression in Europe, which exerted a deflationary force on the American international account.

The banking panic clearly showed the defects of the National Banking System. Under the system of pyramiding reserves, New York banks held $76 million of interbank deposit liabilities, yet had only $64 million of total cash reserves. It was the practice of the New York banks to invest the bulk of the funds received from interbank deposits in call loans to stock-market brokers. These were safe and liquid secondary reserves. Whenever the banks were pressed for cash, they would tighten stock-market credit, and stock prices were likely to fall. Such stringency occurred in mild form even in prosperous years, because of the seasonal increase in the demand for currency during the harvest season. Country banks commonly met this demand by drawing on their interbank deposits, a response which transmitted the pressure up through the pyramid. In 1873, the disturbances associated with railroad finance coincided with this seasonal stringency—thus the severity of the panic.

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[5] On the relation between money and the public debt, see Robert T. Patterson, *Federal Debt-management Policies, 1865–1879,* Duke University Press, Durham, N.C., 1954.

[6] *Historical Statistics of the U.S.*, pp. 262–266. (Subsequent references to financial statistics are generally based on this source.)

The panic led many banks temporarily to cease redeeming their liabilities in cash and to require depositors to accept certified checks instead. In New York and some other cities, where suspension extended to clearing balances, the banks made use of clearinghouse certificates. These were debt claims issued by debtor banks against their general assets. By accepting these, creditor banks in effect made temporary loans to the debtors.[7] Numerous banks failed, with the incidence particularly high among the newly formed state-chartered banks.

The banking crisis was short-lived, however. Bank loans were curtailed in the early months, but by June, 1874, they had regained their previous level. Furthermore, total production soon resumed its upward movement. However, the industrial sector remained depressed in reflection of the previous unduly high level of capital formation. Railroad construction, which averaged about 5,000 miles of new track annually in 1867–1873, averaged only 2,000 miles annually in 1874–1878. Consequently unemployment and distress were widespread in the cities. Not until 1879 did industrial recovery really begin.

For the farmers, the panic and depression renewed the pressure of falling prices. From 1873 to 1879 wholesale prices fell by one-third; by the latter year they were below the prewar level. Debts incurred in the 1860s became increasingly burdensome, and foreclosures were widespread.

The Resumption Act of 1875. The distressed conditions of industry and agriculture produced immediate political repercussions, some of them paradoxical. Pressure for an increase in the currency supply was strong. In 1874, the Treasury did put additional greenbacks into circulation by bond purchases, which brought the total outstanding to $370 million. Then in April, 1874, Congress voted to increase the quantity to $400 million and also to raise the volume of national-bank notes. President

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[7] On the panic, see O. M. W. Sprague, *History of Crises under the National Banking System*, National Monetary Commission, Washington, 1910, pp. 1–91. The panic produced no rush to redeem bank notes and thus demonstrated public confidence in them.

Grant, after some hesitation, vetoed this "inflation bill," condemning it as a step away from ultimate return to convertibility. Partly in consequence, the money supply failed to rise until 1879.

Because of the depression and this unpopular veto, the Republicans lost heavily in the congressional elections of 1874. Before the newly elected Congress took office in December, 1875, there was an interim "lame duck" session for the old Congress. During this session, the defeated Republicans adopted a far-reaching monetary measure which was designed in part to be a political snare for the Democrats. This was the Resumption Act of 1875, which declared that the greenbacks should become convertible into coin in January, 1879. The Treasury was authorized to gather a reserve of gold through bond sales. The volume of greenbacks was to be reduced and national-bank notes expanded. The fractional paper currency was to be withdrawn and coinage of fractional silver resumed as provided by the law of 1853.

By postponing resumption more than three years, the law put the incoming Democrats on the spot. If they retained the law, they would receive the blame for blocking monetary expansion. If they repealed it, they would be discredited among financial conservatives.

Monetary policy figured prominently in the election campaign of 1876. A new political party, composed chiefly of midwestern farmers, put its main emphasis on monetary expansion. Despite its official name, the Independent party, it soon became known as the Greenback party. The Democrats included in their platform a rather ambiguous denunciation of the Resumption Act and gave their vice-presidential nomination to Thomas Hendricks, an opponent of resumption. But Samuel Tilden, their presidential candidate, was for "sound money," as were the Republicans behind Hayes.

Despite a popular plurality for Tilden, Hayes was awarded an electoral majority; but the Democrats won a majority in the House of Representatives. The Greenback party polled only 1 per cent of the popular vote (82,000) for New York philanthropist Peter Cooper. As expected, the House soon passed a bill to repeal the Resumption Act. The bill failed to clear the Senate, and by that time the silver question had blossomed forth and changed the entire character of the dispute. As a result, the Resumption Act was permitted to go into effect. Treasury Secretary Sherman accumulated a gold reserve of $133 million chiefly by bond sales. The premium on gold, which had held steady at about 15 per cent since 1870, dwindled to nothing. The great drop in American prices accompanying the depression brought them back into line with those of Europe. Indeed, during the depression high exports and reduced imports gave the country a favorable trade balance. Under these circumstances, resumption was achieved painlessly. No real contraction was made in the greenback circulation, which was fixed by law in 1878 at $347 million, where it has remained ever since. Resumption by the government was accompanied by similar action by the banks, although they could still redeem their liabilities in legal-tender currency if they wished. Advocates of monetary expansion stopped trying to retain an inconvertible currency and sought instead to substitute a silver base for gold.

THE BATTLE OF THE STANDARDS, 1876–1900

Origins of the Silver Question. The market price of silver bullion had remained above its monetary value most of the time since the coinage revision of 1834. Very little silver was brought to be coined into silver dollars. In 1873 the Federal government passed a new coinage act, concerned exclusively with technicalities. The law, which few congressmen read, omitted from the list of authorized coins the silver dollar. This omission meant that there was no silver coin which the government was willing to issue in unlimited quantities at the initiative of private persons having silver they wanted coined.

Just at that time, a series of events combined to reduce the market value of silver. The newly formed German Empire adopted a gold standard and demonetized the silver coins of the component states. In Nevada, the newly discovered Comstock lode poured forth an increased supply. In 1872 the bullion value of the silver content of a dollar was $1.02; in 1873 it was almost exactly $1, and in 1874 it was 99 cents. The silver miners began to protest.

Finally, all these events coincided with the serious economic depression of the 1870s, which created demands for monetary expansion. Since most public opinion felt somewhat uneasy about inconvertible paper, people were looking for some way to reconcile expansion with "soundness"—convertibility into metal. Silver provided the perfect answer. All that was needed was to return to the principle of bimetallism as practiced before 1860. If silver could be freely coined at its old monetary value, it would now pour into the mints. The money supply would rise, and the declining trend of prices would be reversed.

The issue burst forth in Congress in 1876. Silver partisans—mostly Democrats—attacked the Coinage Act of 1873 as the "crime of '73" and attributed dire motives to its progenitors. The House passed bills to open the mints to free coinage of silver and to transform the Resumption Act from a measure contemplating gold convertibility into one contemplating redemption in silver.

The Senate exercised a moderating influence, however, and a rather mild measure was finally adopted—the Bland-Allison Act of 1878, which passed over Hayes's veto. This law did not restore free coinage but required the Treasury to purchase at the market price from $2 million to $4 million worth of silver each month. This was to be coined into silver dollars, but in case these did not stay in circulation, the law also authorized the issue of a new type of paper currency, the silver certificate, to be backed 100 per cent by silver coins payable on demand. On balance, the law was beneficial, for it created an expanding type of paper currency to meet the needs of a growing economy and offset the static character of the greenbacks and the tendency to decline of national-bank notes.

The years 1877 and 1878 saw the economy seriously depressed. A number of bitter labor disputes erupted in 1877, and unemployment was high. Farm prices took a sharp drop in 1878. The Greenback movement attracted considerable labor support, and in the congressional elections of 1878 it polled over a million votes and sent fourteen men to the House of Representatives. But when business improved sharply in 1879 under the stimulus of rising exports, monetary radicalism tended to fade into the background. In particular, labor support vanished and was never really recaptured by monetary expansionists in subsequent years.

The Treasury as a Central Bank, 1879–1890. The resumption program and the Bland-Allison Act placed the Treasury in a position of unusual monetary responsibility after 1879; indeed, the Treasury acquired many of the attributes of a central bank. The country now had three major types of paper currency: greenbacks, which were convertible into gold on demand; silver certificates convertible into silver on demand; and national-bank notes, which banks were obliged to convert into greenbacks on demand or into coin if they wished. In 1882 Congress added a fourth type when it authorized the Treasury to issue gold certificates in exchange for deposits of gold which were to be retained as 100 per cent reserves. All types of currency were acceptable in payments to the government, and all circulated at par with each other.

The greenbacks were not backed by 100 per cent reserves; instead the law of 1882 indicated that a normal reserve should be $100 million, or about 30 per cent. This requirement put the Treasury in the fractional-reserve banking business. It tended to become the custodian of the country's gold reserve, for commercial banks preferred to hold greenbacks or gold certificates. The Treasury was put at the apex of a reserve pyramid, in which the small banks held claims against the big banks and the big banks held claims against Treasury gold. The demand for gold fluctuated mostly in response to movements of international finance. When commodity exports and capital inflow were substantial, gold was imported and gravitated into the Treasury in tax payments or in return for gold certificates. When the demand for gold to export rose, business firms drew it from banks, who in turn drew it from the Treasury and paid in greenbacks or certificates. But the Treasury did not have enough gold to redeem all possible liabilities. A substantial gold drain tended to reduce the reserve and arouse doubts as to whether convertibility could be maintained. The first such scare came in 1884.

The Treasury could not, of course, create money or bank reserves, nor did it carry on loan activities; but it had other instruments of quasi-central-banking influence. It was authorized by law to sell bonds when necessary to augment its gold reserve, and it could also redeem or purchase bonds if it had surplus cash and if the market seemed to need such a stimulus. Another instrument was the Treasury cash balance, which could be shifted into banks to increase their reserves or withdrawn to check them. During the crisis of 1884, the Treasury purchased bonds in exchange for currency; and when stringency developed in 1887–1888, in addition to bond purchases, Treasury funds were shifted into banks. After 1898 these techniques were used almost continually, particularly to meet seasonal variations; but their general application occurred only after the Treasury had passed through its chief central-banking crisis in 1893, which we shall describe shortly.

Thus the Treasury not only resembled a central bank but tended to act like one and to follow central-banking objectives of aiding the money market and protecting the gold reserve. However, its objectives were not always consistent. Treasury officials frequently attempted to ease credit during periods of tightness, but these were sometimes boom periods when restraint was needed (1906 for example). Treasury officials usually tried to furnish aid when panic and depression occurred, but often they had failed to accumulate sufficient funds beforehand. Finally, the ultimate goal of Treasury monetary policy was to protect the gold reserve and maintain convertibility. When this safety was threatened, as in 1893, other objectives were subordinated.

Although Treasury policies were often in their interest, members of the financial community disliked these experiments in discretionary central banking. If such activities were to go on, they wanted them conducted by a central bank, free from political control and furnished with suitable guides to conduct.

The Money Supply, 1865–1890. During the period 1865–1880, paper currency in circulation remained almost constant, but bank deposits grew rapidly and doubled in volume in this period. After the government created gold and silver certificates, the volume of paper currency expanded substantially in the 1880s, as did bank deposits. Coin and currency outside banks grew from slightly over $500 million in 1879 to nearly $900 million in 1890, while commercial bank deposits rose from $1.2 billion to $3 billion in the same period.[8] These figures mark the emergence of bank deposits as the predominant form of money; coin and currency, which accounted for half the money supply in 1865, had dwindled to one-fourth by 1890—a figure not much different from that of recent years. By the turn of the century it was a commonplace observation that most business payments were made by check.

The remarkable monetary expansion of the 1880s occurred during a period when *GNP* in current prices was rising very little—from about $10 billion in 1880 to about $12 billion in 1890. Output was increasing rapidly, but prices were declining. Consequently the money supply rose from about 20 per cent of *GNP* in 1870 and 1880 to over 30 per cent in 1890.[9] Paradoxically, there arose during this period the most potent political agitation to date for further monetary expansion.

The Agrarian Crusade. The underlying agrarian pressure for monetary reform quieted down somewhat during the 1880s, but its most spectacular outburst was yet to come. After a brief respite in the early 1880s, farm prices headed downward again. By 1896 wholesale prices had fallen 25 per cent below their 1878 level. The farmers also protested against an inequitable credit structure under which mortgage money was usually available only at interest rates of 10 to 40 per cent per year. Credit stringency was increasingly burdensome because the development of machinery increased the capital requirements for successful farming. The farmers also objected to Federal fiscal policy, which repaid the national debt in money worth two or three times what the bonds had been issued for and which financed public expenditures wholly (after 1872) by regressive taxation that increased the farmer's costs and (through the tariff) reduced his potential export markets.

Other farm grievances also provided impetus for all agrarian political objectives, including the monetary. The Western farmers were sorely beset by the land system and by the railroads. Despite the theory of the Homestead Act, land distribution after the war permitted much good farmland to fall into the hands of monopolists (chiefly the railroads) and speculators. Once a farmer was producing, he often found himself gouged unmercifully through high rail rates. He also felt exploited by corporate trusts which dominated markets in which he sold (meat packers) or bought (kerosene, farm machinery). As market prices of farm products declined, farmers were receiving a smaller proportion of those prices, with no compensating reduction in costs.

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[8] Unpublished data from study by Milton Friedman and Anna J. Schwartz for National Bureau of Economic Research, Inc.

[9] *GNP* data are unpublished figures from study by Simon Kuznets for National Bureau of Economic Research, Inc.

Finally, the farmers were confronted with a government in Washington dominated by the forces of big business and high finance. In response to their political and economic troubles, the farmers organized. The 1870s and 1880s witnessed great growth in the National Grange and Farmers' Alliance movements, which exerted political influence through nonpartisan actions.

After economic recovery began in 1879, farm agitation died down. The major parties contested the election of 1880 chiefly on the tariff issue and ignored money. The Greenback party, advocating free silver, polled only 300,000 presidential votes out of 9 million. In 1884, on a platform which did not mention free silver, they fell to a mere 175,000, and the party then disintegrated.

Renewed farm difficulties in the 1880s revived agrarian political activities. Southern farmers, who had followed their own political course for twenty years, joined the protest movement as cotton prices sank after 1881. In 1884 a banking and financial panic set off a short but painful industrial depression. A rush of Western settlement and a land boom which built up in the prosperous early 1880s collapsed as prices fell and the weather turned bad. Credit became tight, and a wave of foreclosures forced many farmers into tenancy.[10] Renewed distress led to rapid expansion of the Alliance movement, which proved a potent force in the congressional elections of 1890. In 1892 Alliance leaders formed a new party—the People's party, or Populists—that polled over a million presidential votes, nearly 10 per cent of the total, and elected eleven congressmen. The Populist platform demanded numerous reform measures, including unlimited coinage of silver.

The Sherman Silver Act of 1890. Revival of the monetary question in Congress came under unusual circumstances. In 1889–1890 six new Western states were admitted to the Union; these increased the silver interest in the Senate. At the same time, Republican strategists were casting about for a way to enlist farm support for a higher protective tariff. For this purpose the administration in 1889 proposed that purchases of silver be increased to raise its price. In response, Congress adopted the Sherman Silver-purchase Act in 1890, which required the Treasury to purchase 4.5 million ounces of silver each month (virtually the entire domestic output) at the market price (then about $1 an ounce, compared to the monetary value of $1.29). The law authorized a new type of paper currency, legal-tender treasury notes, to be used to buy the silver. These notes were redeemable in either gold or silver. The treasury notes served chiefly to complicate the Treasury's problem of defending the gold reserve. Every silver purchase now provided the public with a claim against Treasury gold, and it was not long before these claims provoked a crisis.

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[10] Fred A. Shannon, *The Farmer's Last Frontier*, Rinehart & Company, Inc., New York, 1945.

The Panic of 1893. The Treasury had to endure a minor crisis in 1890. A financial panic in Britain led to a reversal of international capital flow and drew gold from the United States. Since the culmination of these events occurred in autumn, the New York banks sustained a crisis of their own and were again obliged to issue clearinghouse certificates to settle balances with each other. Security prices fell and call-loan rates jumped. The panic was not serious, however, and the economy continued to expand, though farm prices continued downward. Neither major party urged monetary change in 1892, but the big Populist vote showed the magnitude of discontent.

Late in 1892 the Treasury's gold reserve again began to dwindle, partly under pressure of capital flight from foreign investors who feared that gold convertibility would not be maintained. The outgoing Harrison administration managed to keep the gold reserve above $100 million only by pleading with the New York banks to furnish it with gold in exchange for currency. An increasing quantity of the new treasury notes were being presented for gold redemption, and as the reserve dwindled, holders of those notes became more alarmed about their future.

By the middle of 1893, a general financial panic broke out. Banks in the interior that were subjected to heavy demands for currency transmitted the demand to the New York banks, which fell below the legal reserve minimum and again issued clearinghouse certificates. The banking panic was the most severe in the interior since 1839. Nearly five hundred banks closed during the year, including sixty-nine national banks, and a great many more ceased temporarily to redeem deposits in cash. Bank loans contracted and security prices fell sharply.

The panic gave way to a serious industrial depression. *GNP* spending fell more than 10 per cent, though part of this decrease was absorbed by reduced prices. The economy remained unevenly depressed until 1896; at worst, about four million workers were unemployed—nearly 15 per cent of the labor force. Labor unrest increased, and there were bitter and violent strikes.

Against such a background, the Cleveland administration persisted in its conviction that the nation's number one problem was to maintain the gold standard and that proposals for welfare, relief, and reform were to be subordinated to that objective. By stretching his patronage resources to the utmost, President Cleveland induced Congress to repeal the compulsory silver-purchase program of 1890, so that issue of the troublesome treasury notes halted.

In June, 1893, the gold reserve stood at only $95 million, while $470 million of greenbacks and treasury notes were in circulation. The only sure way to build up the reserve was to issue bonds for gold, but this measure was bound to be unpopular. It would increase interest payments to capitalists to maintain the government on a gold standard generally regarded as "rich men's money" anyway. But the Treasury went ahead; in 1894 it obtained $59 million in gold from New York bankers for bonds, but most of this supply was quickly withdrawn for greenback redemption.

The year 1894 was one of serious depression. Coxey's army of unemployed marched on Washington, and a violent railroad strike around Chicago seemed to have revolutionary overtones. The price of wheat reached its lowest level in a century. In the fall elections, the Populists polled 1.5 million votes, and many politicians in the major parties were also bidding for farm votes. Only the certainty of a presidential veto prevented passage of a free-silver bill.

Unfortunately, the international balance continued unfavorable. Foreign investors were selling American securities in fear of monetary devaluation or of defaults resulting from the depression of business.

By February, 1895, the Treasury gold reserve was down to $40 million, and gold was pouring out at the rate of $2 million daily. At that point President Cleveland made an extraordinary agreement with a syndicate of international bankers for the sale of additional bonds for gold on terms which would protect the Treasury against withdrawals. The bankers agreed to obtain at least half the gold in Europe and to borrow additional funds there which they would sell as foreign exchange in the United States, as a substitute for gold exports. For a time, the effort succeeded. Capital flight calmed down, and the new funds put the reserve over $100 million again. By midsummer European funds were flowing back in.

The improvement was only temporary. A poor harvest plus a speculative rise in imports drove the dollar down to the gold-export point despite the efforts of the syndicate to hold it up. When syndicate funds were exhausted in late 1895, gold poured out of the Treasury again. The Treasury could only issue more bonds, and a further $100 million of gold was obtained. At last in 1896 the harvest improved, exports increased, and the gold export subsided.

The bond issues added over $250 million to the public debt. Although the additional bonds encouraged national banks to expand their note issues, the total money supply declined by $200 million through loan contraction and gold outflow in 1895–1896. The prescription of orthodox theory, that gold exports should lead to monetary contraction, was effected, but at the cost of worsening domestic deflation.

The Election of 1896. Deep depression and a heartless administration sacrificing public welfare to monetary dogmatism—this was the way many farmers and workers appraised the situation. The ground swell of unrest had been measured in the rise of the Populist party, but the leadership of the major parties had remained aloof. Now the Democrats knew they could not hope to win with a conservative of Cleveland's type. Instead, party leadership was seized in the presidential campaign of 1896 by the agrarian wing, and the nomination went to William Jennings Bryan.

Bryan was a vigorous young Nebraskan with the manner of a revival preacher and a sincere dedication to overthrowing the political rule of the rich and to replacing the gold standard by free coinage of silver. His dramatic speech which stampeded the convention was a masterpiece of the demagogue's arts. "We will answer their demand for a gold standard," he concluded, "by saying to them: 'You shall not press down upon the brow of labor this crown of thorns, you shall not crucify mankind upon a cross of gold.'"

The Republicans nominated McKinley and came out unreservedly for maintenance of gold.[11] The campaign was one of the most clear-cut contests between "liberal" and "conservative" forces in American politics. Bryan rallied the long-discontented farmers of the West and South and sought support as well among the industrial workers of the Eastern cities. The Republicans, however, were able to appeal to the extensive middle class, as well as to the wealthy, who provided ample finances for their campaign. They maintained a posture as the defenders of respectability, denounced Bryan as a radical and crackpot, and dismissed the proposed silver coinage as "pig money."

The campaign was in doubt until the final weeks. Then it became apparent that the American harvest was abundant, while poor crops in Europe assured that prices would be high. Bryan's support weakened, and McKinley emerged victorious by half a million votes out of 14 million cast. Bryan won his electoral votes largely in the South and in the silver states. He failed to carry such farm states as Illinois, Indiana, Iowa, Michigan, Minnesota, North Dakota, and Wisconsin, and he was far behind in the Eastern states. The conclusion is inescapable that many farmers voted against Bryan, and quite probably a lot of industrial workers as well. Traditional Republican attachments and memories of the Civil War probably figured in this. The silver issue was simply not strong enough to rally the farmers and workers, many of whom would in later years flock to support more logical reform programs and personalities.

Bryan remained a power in the Democratic party for another twenty years, but his career after 1896 was an anticlimax. The upturn of farm prices proved to be a change in trend. Increased gold output from

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[11] McKinley's monetary philosophy was expressed with unconscious humor in his memorable remark: "We cannot gamble with anything so sacred as money."

South Africa greatly expanded the world's gold stock, and the long period of deflation gave way to an upsurge of prices. In the United States, the silver question receded into the background. In 1900 the triumph of sound finance was sealed by the Gold Standard Act, which declared gold to be the standard money of the country and imposed on the Treasury the obligation to maintain the various forms of currency at parity with it.

Who Was Right? The monetary controversies which raged intermittently from 1865 to 1900 reflected deep social conflicts arising out of the country's economic and political development. The period was one of rapid growth in output and real incomes, but the benefits of this growth were very unequally diffused. The farmers, who had become heavily dependent on export markets, lost real income as commodity prices fell. Although they blamed the fall on monetary conditions, a more important factor was the tremendous increase in world output of things for which demand was relatively inelastic. Another group which did not enjoy much of the fruits of progress was the large class of industrial workers, chiefly immigrants, who received very low wages and worked under extremely unpleasant conditions. Rapid immigration increased the labor supply and kept wages low for unskilled workers. Both farmers and laborers were hard hit by the periodic depressions of the period.

Against these economic unfortunates were ranged the forces of sound money. Leadership came from the wealthy and powerful capitalists and managers produced by the Industrial Revolution. This influential group, which included many who might have gained by inflation, supported sound money partly for reasons of politics and ideology, partly because many of them held fixed-income securities. The rank and file supporting sound money were recruited from the extensive middle class of skilled workers, clerks, storekeepers, teachers, etc. No doubt many of these people also gained materially as prices fell while their incomes remained steady or rose, but many of them supported sound money on moral or ideological grounds. Besides a conviction that it was morally wrong to divorce money from gold, the sound-money ideas drew support from fear of government irresponsibility and from concern over a possible repetition of the price experience of the 1860s. Some sophisticated adherents also realized that sound money was important to encourage the inflow of foreign capital to the United States. The sums involved were not trivial: in 1897 foreigners owned about $3 billion of American securities, and by 1908 this figure had doubled. The silver advocates were isolationist and had no use for foreign investors or their money.

The pressure for monetary reform reflected more than a desire for higher prices and easier credit. It also reflected discontent with trusts, railroads, the tariff, and the general obeisance of government before the power of wealth. After 1896, demands for reform in many of these areas were successful, even though the monetary controversy per se was not revived.

Historians have instinctively sympathized with the discontented, many of whose grievances were legitimate complaints. They were obliged to bear an undue share of the burdens of economic growth. And it is not certain that adoption of free silver would have worked major harm on the economy. There is not much to be said in favor of either side, however, from an economic viewpoint. Both silver partisans and sound-money men showed a touching devotion to the idea that the monetary system would work automatically and that the currency should have a metal base. Thus neither side offered any likely solution for the problems of economic stability, bank failures, currency panics, and related matters. Emphasis in the silver campaign was on long-run increase in the money supply, not on countercyclical variation. But with the growth of demand deposits, there was no scarcity of money by 1890. It is doubtful whether free silver would have worked much improvement in the long-run economic status of farmers, for monetary expansion in the United States might have raised prices paid by farmers more than prices they received for their produce, because of their dependence on export sales.

Finally, whatever the merits of monetary expansion, the silver movement was heavily committed to the unsound principle that the government should buy up large amounts of a relatively useless commodity to support its price and subsidize its producers. Whatever one's sympathies about the election of 1896, defeat of the silver campaign was no great public disaster.

BANKING CONTROVERSY AND REFORM, 1900–1913

National and State Banks. The rapid growth in the number and the volume of business of banks continued into the twentieth century. By 1900 state-chartered banks outnumbered national banks—8,700 to 3,730. National banks held about 55 per cent of commercial bank assets but were losing their lead rapidly. In the previous decade 565 state banks had closed, compared to 242 national banks. These were nearly identical proportions of the two groups, a fact which indicated poor banking standards in both.

The Gold Standard Act of 1900 made efforts to encourage more banks to take national charters, but its methods were not calculated to improve banking standards. The law permitted notes to be issued up to

100 per cent of the value of bonds deposited as security and reduced the tax on notes. Minimum capital requirements for small-town banks were reduced. Some banks did shift their status, but the number of state-chartered banks increased faster than ever. Both their number and assets doubled in less than a decade. By 1910 there were more than 17,000 of them, while national banks had increased to over 7,000.

Panic of 1907. Economic conditions in the first part of the new century must have warmed the hearts of the sound-money advocates. Business was booming, and prosperity was widely shared. Indeed, the fifteen-year period following 1896 was downright inflationary—wholesale prices rose 50 per cent. The money supply increased even more, from $4 billion to $10 billion. The lover of paradox might note that, having suffered through thirty years of deflation under various forms of unsound money, the country no sooner committed itself to a rigorous adherence to the gold standard than it was caught up in a substantial inflation.

The first decade of the new century was a period of rapid expansion in industrial capital formation, marked particularly by a large number of mergers and a highly speculative temper in the stock market. In the autumn of 1907, prosperity was again interrupted by financial panic. Financial weakness was most serious in the great number of state-chartered banks operating as "trust companies," under very lenient regulation. When a few of these got into difficulty through speculative investments, public confidence was weakened in all such institutions, and a series of runs developed in October. As banks scrambled for cash and the public fear of suspension spread, the other New York banks were dragged in. Loans were curtailed, and contraction of call loans brought the usual stock-market break. At the same time, banks in the interior increased their demands for cash to meet normal autumn drains and some panic withdrawals. After some delay, the New York banks again resorted to clearinghouse certificates to economize on cash in settlements, and some refused to redeem deposits in cash. Many interior banks were consequently deprived of access to cash and had to suspend redemptions also.

Fortunately for the economy, the banks did not generally feel obliged to contract their loans drastically (suspending cash payments helped take the pressure off). Furthermore, the underlying economic conditions making for prosperity were strong, and the economic downswing accompanying the panic was short-lived.

Public reaction against the banks was all the greater because of the feeling that there was no real excuse for the panic. In immediate response, Congress in 1908 adopted the Aldrich-Vreeland Act, which authorized national banks acting in groups in an emergency to issue additional bank notes on security of assets other than government securities. This provision was generally modeled on the issue of clearinghouse certificates by groups of banks, except that the new notes could be used by the public as well as by banks.

The act also established a National Monetary Commission, which conducted an extensive investigation of the banking system and the proposals for its improvement. In its report of 1912, the Commission submitted a plan for a central bank—the Reserve Association—which would rediscount commercial paper, hold commercial bank reserve deposits, and issue notes. These ideas formed the foundation for the Federal Reserve Act of 1913.

Passage of the Federal Reserve Act, 1913. In the extensive monetary discussions in the years following 1907, there was general agreement that the National Banking System was unsatisfactory, particularly in its susceptibility to panics. The reserve arrangements were criticized because they exaggerated the amount of actual cash and spread the existing supply too thinly among the banks. The existing system of banknote and currency issue was condemned for its inelasticity. The quantity of currency did not adjust to seasonal variations in demand for it, nor was there any guarantee that it would expand to meet the needs of a growing economy. In particular, there was no way in which the currency could be expanded during panic periods to meet sudden desires to hoard. The inflexibility of national-bank notes resulting from their link to government securities was particularly criticized. What was needed, many critics felt, was some kind of central reserve pool and some agency which could issue or contract currency in response to variations in the need for it. The critics noted also the inefficiency of existing facilities for clearing checks and the cumbersome arrangements for managing Treasury funds.

Although there was general agreement on these objectives, there was much partisan dispute over how to achieve them. Members of the financial community supported the Aldrich plan for a central reserve association to be superimposed on the local clearinghouse associations sanctioned by the Aldrich-Vreeland Act. They wanted a system controlled by bankers and designed to issue limited quantities of notes which would be strictly private obligations. The agrarian interests preferred an agency (or agencies) controlled by the government and set up to issue large quantities of notes which would be government obligations. In the election of 1912, the major parties urged monetary reform, but the Democratic platform declared that "we oppose the so-called Aldrich bill or the establishment of a central bank," and favored reforms to provide "temporary relief in localities where such relief is needed, with protection from control or domination by what is known as the money trust." Republicans, while noting the need for banking reform, urged that "the independence of individual banks, whether organized under national or State charters, must be carefully protected. . . . "[12]

The points of agreement were more significant than those of dispute, and the end result embodied in the Federal Reserve Act of 1913 was quite consistent with the Aldrich proposal with respect to functions, if not organization. Detailed discussion of the act appears in the following chapter.

SUMMARY AND GENERAL OBSERVATIONS

Review of the events of the period 1860–1914 can conveniently be based on Figure 15-1, which shows the behavior of money and prices.

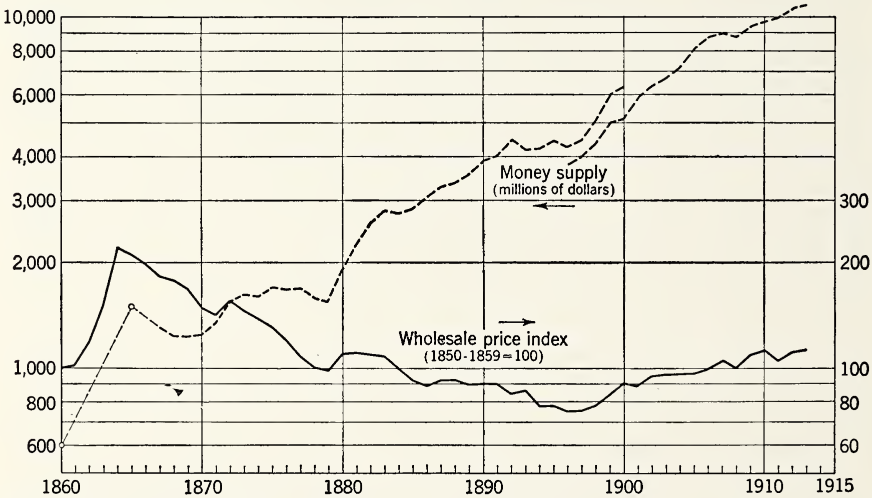

Fig. 15-1. Money and prices, 1860–1913. (Price data from Fig. 14-1. Money supply data: 1860 and 1865, author's estimates; 1867–1900, from unpublished data compiled by Milton Friedman and Anna J. Schwartz for National Bureau of Economic Research, Inc.; 1896–1913, from *Monetary and Banking Statistics* and *All-Bank Statistics*. Data for 1867–1881 are for January or February; subsequent years are for June.)

During the Civil War, both North and South relied on paper currency to finance deficits, and the great monetary expansion generated inflation. In 1863 the United States adopted the National Banking Act to control the banks and promote bond sales. This act imposed reserve requirements and Federal supervision in exchange for the exclusive right to issue uniform, bond-secured notes. With the aid of a tax on state-bank notes, this program made a drastic improvement in the quality of the currency, but the voluntary nature of membership became a detriment in later years.

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[12] Kirk H. Porter and Donald B. Johnson (eds.), *National Party Platforms, 1840–1956*, University of Illinois Press, Urbana, Ill., 1956, pp. 171, 185.

For fifteen years after the war, monetary policy was deadlocked between advocates of a return to convertibility and agrarian partisans of monetary expansion to combat the painful drop in prices. Finally, after the panic of 1873 had brought American prices into parity with those abroad, the currency was restored to convertibility in 1879 under the Resumption Act of 1875, a measure passed by a repudiated "lame duck" Congress.

Continued deflation (note the behavior of prices in the late 1870s in Figure 15-1) and the rapid growth of silver production led the expansionists to advocate a return to unlimited coinage of silver at the pre-1860 value. This campaign achieved limited success in the Bland-Allison and Sherman Acts but failed its big test when Bryan was defeated in 1896. However, the price level started to rise, and by 1900 the end of the silver controversy was marked by the Gold Standard Act.

The period was also notable for economic instability and financial panics. The banks received much blame for instability—credit consistently rose in booms and declined in depressions, and bank failures added downward pressure to the latter. The stock market was closely linked to this instability through call loans from banks. After the panic of 1907, the defects of the reserve and currency arrangements were generally recognized and attempts at reform led to the Federal Reserve Act of 1913.

Economic instability was also the result of the pattern of fixed capital investment and the international balance. Railroad and industrial capital formation fluctuated widely because of rate-of-growth influences, manipulation and trickery in corporate management, and stock-market speculation. Exports depended on harvests and fluctuated with weather conditions; capital inflow, large in the aggregate, tended to rise and fall with foreign business conditions and was subject to periodic capital flight when the political power of silver was high.

The half century after the Civil War witnessed the industrialization of America and the rise of "finance capitalism" associated with the large corporation. Investment banking firms developed in order to assist in marketing new securities (many of which were sold abroad); stock markets and brokerage firms also expanded to deal in them. Savings banks and insurance companies became large investors in bonds. Commercial banks were still the leading financial institutions—by 1914 they held about $21 billion of loans and securities, while insurance companies and other savings institutions held about $12 billion. But the value of corporate securities by 1912 was about $50 billion!

Between 1860 and 1914 the nation's output grew almost eightfold. In the same time, tangible real assets of the economy increased from less than $10 billion to nearly $100 billion, valued at cost. Roughly one-fourth of this growth was financed by the expansion of bank credit, another 10 per cent by other financial institutions, and perhaps 5 per cent by foreign capital. The remaining 60 per cent came from reinvested profits and from the saving of wealthy capitalists, who were probably a more important part of the growth process in this period than ever before or since.[13]

Finance capitalism also produced an alarming tendency toward concentration of power in private hands. Close relations among banks and other financial firms gave rise to talk of "the money trust," of which the legendary J. P. Morgan was the ostensible leader. This financial network spread its influence into industry in a manner exemplified by the formation of the giant United States Steel Corporation in 1901.

In response, the early twentieth century witnessed a great extension of government control of industry, through antitrust and through direct regulation of railroads and utilities. Establishment of Federal income and profits taxation opened the way for reduction in the concentration of income and wealth. In finance, besides the Federal Reserve Act, the period saw improved state regulation of insurance after the Armstrong investigation of 1906 in New York. The Federal government entered into competition with some financial firms by establishing the Postal Savings System (1910) and the Federal land banks (1916). Nevertheless, the regulations imposed on both financial and nonfinancial business were not fundamental enough, as the experience of the 1920s was to demonstrate, and really effective controls came only after the Depression of 1929–1933.

QUESTIONS FOR STUDY

1. Suppose that there had been no Civil War and that the United States had retained into the 1870s the system of bimetallism which existed in the 1850s, under which silver dollars could be coined in unlimited amounts at $1.29 to the ounce. Write a conjectural history of the economic effects and political repercussions in the 1870s.

2. Under the reserve requirements established in 1874 for national banks, how much cash in vault was required directly and indirectly for each dollar of deposits in country banks? In reserve city banks?

[13] Raymond Goldsmith, *The Share of Financial Intermediaries in National Wealth and National Assets, 1900–1949*, National Bureau of Economic Research, Inc., New York, 1954; Cleona Lewis, *America's Stake in International Investments*. The Brookings Institution, Washington, 1938; *Historical Statistics of the U.S.; Monetary and Banking Statistics.*

3. "Most of the harmful effects of Civil War inflation were only temporary, since prices went down again." Do you think the effects would have been better or worse if prices had stayed up? Using Figure 15-1, try to estimate the percentage change in real value by 1878 of a government bond purchased in 1863; of a farm mortgage incurred to buy land at 1868 prices.

4. Summarize and evaluate the role of the Federal government in nineteenth century economic depressions.

5. Critics of the National Banking System argued that banks were allowed to earn a double profit on note issues, because they received interest on the government bonds put up as note security and then used the notes to make loans which earned more interest. Evaluate the validity of this criticism.

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CHAPTER 16

MONETARY AND BANKING DEVELOPMENTS IN THE UNITED STATES 1914–1940

INTRODUCTORY

By 1913, the American economy had completed about a half century of rapid industrialization. Population had risen to 95 million, and the current value of gross national product was $40 billion. The long deflation of prices which followed the Civil War was receding into the past; for more than fifteen years prices had been advancing. The Gold Standard Act of 1900 put an end to wrangling over bimetallism, and by 1913 half the nation's coin and currency consisted of gold coins or gold certificates fully backed by coin. Other types of currency, such as silver certificates, United States notes, and national-bank notes, were all convertible into gold on demand.

Bank demand deposits constituted three-fourths of the total money supply. Under the national banking legislation initiated during the Civil War, the Federal government controlled the note issues, loans, and reserves of such banks as chose to take national charters. However, of the nation's 26,700 commercial banks, over 19,000 preferred the more lenient terms of state charters. National banks accounted for only half the commercial banking assets of the country.

National banks were not much better supervised than others, and there were many obvious defects in the National Banking System. Bank notes could be issued only if backed by government securities, and there was no provision for adapting the volume of notes to variations in demand arising out of seasonal factors, economic growth, or hoarding demands during panic. Required reserves were held in cash or deposits with other banks. There was no source from which the banks as a group could obtain additional liquidity during a crisis, and the reserve pyramid tended to transmit liquidity panics from bank to bank.

After the financial panic of 1907, exasperated public opinion demanded banking reform. The result was the Federal Reserve Act of December, 1913.

This chapter is concerned largely with the fortunes of the Federal Reserve System through a stormy quarter century. It started operations during the turbulence of World War I. A period of relative success and stability in the 1920s ended in the stock-market crash and the Depression of the 1930s. Inability of the Federal Reserve to prevent the worst financial panic in American history led to extensive changes in its structure and in the financial system generally. Since the changes of the 1930s largely created our modern financial system, it is important to see why they occurred as they did.

THE FEDERAL RESERVE ACT

Objectives. The Federal Reserve Act of 1913 compromised on many points of dispute and was deliberately ambiguous on others. The act was the work of the Democrats, and leaders of finance generally opposed it. The American Bankers' Association characterized it as "hard to accept . . . for those who do not believe in socialism." However, the System soon won the support of the financial community.[1]

The preamble to the act announced its purpose: " . . . to furnish an elastic currency, to afford means of rediscounting commercial paper, to establish a more effective supervision of banking, and for other purposes. . . . " This statement described largely the functions of the System rather than the end results hoped for. It said nothing explicit about stabilizing the economy, preventing panics and depressions, promoting economic growth, or similar objectives. A further directive appeared in the substance of the law, which directed that discount rates be set "with a view of accommodating commerce and business. . . . " This was vague and implied, if anything, a commitment to easy money.

Structure and Organization. A large part of the law was concerned with technicalities of organization. The law envisioned a federation of regional Federal Reserve banks, each serving member banks in its district. The Reserve banks would be financially interdependent and would maintain clearing accounts and rediscount facilities for each other. Each was to be controlled by a nine-man board of directors, six of whom were to be chosen by member banks and three by the Board in Washington. These directors would select the actual executives.

[1] Alexander Hamilton would have taken pleasure in the fact that the first chairmen of the boards of the Minneapolis and Atlanta Reserve banks were named Rich and Wellborn. Board of Governors, Federal Reserve System, *Annual Report*, Washington, 1914, p. 189.

The regional banks would be supervised and coordinated by the Federal Reserve Board in Washington. The seven Board members included the Secretary of the Treasury, the Comptroller of the Currency, and five other presidential appointees. The Board's chief mandate was to "exercise general supervision" over the Reserve banks, mainly to see that they complied with the law respecting note issues, reserves, etc. The Board was authorized to suspend reserve requirements in an emergency. It was also given the power of "review and determination" over discount rates—a vague provision which led to frequent conflicts of opinion between the Board and individual Reserve banks. The general intent of the law was to leave most operating responsibility with individual Reserve banks, so that the System was to be a federation with regional autonomy.

The lines of organization laid down by the original act subsequently revealed many defects. The law left undetermined the location of power, responsibility, and initiative within each Reserve bank, among the banks as a group, within the Board, and between banks and Board. The emphasis on group executive power, particularly at the Board level, created an administrative atmosphere which was deadening to initiative and provided too many opportunities for delay and inaction. This muddled structure was consistent with the notion that the System's operation would be largely automatic and passive, so that initiative and leadership were unnecessary.

Commercial bank membership in the system was made mandatory for all national banks—except that these remained free to switch to state charters and fifteen of them did. State-chartered banks were invited to join the System, but there was no compulsion to do so. However, the law increased the lending freedom of national banks in hopes of making national status more attractive. Thus the law continued to make Federal regulation optional for the banks. Each member bank was required to subscribe to the capital of its regional Federal Reserve bank, for which it received stock. It was also obliged to conform to reserve requirements and submit to bank examination. In exchange, it received voting rights for directors and access to Federal Reserve notes and rediscount facilities.

Federal Reserve Notes and Rediscount Facilities. The law created a new paper currency to be issued by Reserve banks. Federal Reserve notes were declared to be obligations of the government and were convertible into gold or other currency on demand. Reserve banks were allowed to issue notes only on condition that they put up 100 per cent collateral in the form of rediscounted commercial paper, plus a reserve of 40 per cent in gold. The collateral provision was designed to link note issue with rediscount.

Each Reserve bank was authorized to discount commercial paper for the member banks, provided that the paper was "eligible." The IOUs must arise "out of actual commercial transactions" and have not more than 90 days to run until maturity (six months for agricultural paper). The expectation was that rediscounting would be the means for the member banks to obtain additional currency and that variations in the volume of commercial loans would provide an automatic guide for the proper volume of notes. For instance, during the crop-moving season, the member banks would tend to enlarge their short-term agricultural credits and could rediscount some of these to obtain the added currency traditionally needed. At Christmastime, inventory loans to merchants would serve the same function.

Thus the Federal Reserve Act enacted the commercial-loan theory of credit. There was certainly a paradox in this, for one of the basic premises of that theory was that commercial loans were by their nature liquid. The fact that a central bank was needed to rediscount these IOUs proved that this liquidity was a fictitious property for the banking system as a whole. If liquidity had to be conferred by rediscount, it could with equal facility be conferred on any asset on which the Federal Reserve was prepared to lend, including the bank building itself.

Devotees of the commercial-loan theory tended, however, to stress the fact that it provided a desirable directive for the kind of credit created and for its total volume. They wanted bank loans to be "productive" instead of "speculative" and believed that the volume of commercial paper gave an indication of the "needs of trade" for money, the supply of which should vary with the demand.

The theory was naïve in assuming that the type of IOU involved would also correspond to the actual use of the funds. A merchant could buy inventories with his own money and then borrow on them to raise funds for speculation. Nor would the volume of commercial paper be an ideal guide to the appropriate quantity of money, particularly over cyclical variations. During a period of inflation, for instance, a given quantity of goods could give rise to an increasing amount of commercial loans and thus expand the money supply. Contrariwise, a recession would tend to reduce loans and the money supply.

Applying this theory to the Federal Reserve's rediscount operation magnified the fallacy, for it ignored the possibility that the proceeds of rediscounting would go not into currency but into bank reserves, each dollar of which could support several dollars of deposits. Thus an increase in rediscounting could make it possible for the money supply to expand by more than the "needs of trade." The commercial-loan principle created a tendency for Federal Reserve credit to fluctuate perversely over the business cycle, and the collateral requirements definitely impaired the discretionary authority of the Federal Reserve over note issues.

The rigid requirements of the original law did not remain in force long. In 1916 the Reserve banks were authorized to lend to member banks on collateral of government securities, and such loans thereafter always constituted a substantial fraction of Reserve bank lending. In 1917 the collateral requirement for notes was revised to require merely the 40 per cent gold reserve plus 60 per cent of additional gold or commercial paper. These changes meant that Reserve note issues could vary with gold, government securities, and commercial paper. Although the commercial-loan principle was thus weakened, its tendencies toward cyclical perversity remained operative.

Member Bank Reserves. The law retained the classifications of banks introduced by national banking legislation. Banks in New York, Chicago, and St. Louis (until 1922) were classed as central reserve city banks. There were forty-nine reserve cities. Reserve requirements for demand deposits were set at 18 per cent for central reserve and 15 per cent for reserve city banks. All other ("country") banks were subject to a 12 per cent requirement. Time deposits, not separately treated in previous legislation, were subject to only a 5 per cent requirement. These reserves were to be divided between vault cash and deposits with the Federal Reserve. However, in 1917 these provisions were replaced by the more familiar 13, 10, and 7 per cent requirements for demand deposits, with time deposits cut to 3 per cent; but the banks were now required to hold the entire amount with the Federal Reserve. No discretion was given to the Federal Reserve Board to change reserve requirements.

The Federal Reserve itself was subjected to reserve requirements of 40 per cent in gold for notes and 35 per cent in gold or currency for deposit liabilities. Thus proper respects were paid to the gold standard, as well as to the commercial-loan principle. The gold reserve was certainly expected to limit credit expansion by the Federal Reserve, but whether increased gold required expansion of Federal Reserve credit is not clear.

The common attitude toward member bank reserves was that they had been pooled in a sort of warehouse. The idea that the Federal Reserve banks could create or destroy reserves through credit variations was not apparently recognized. Furthermore, member bank reserve requirements were generally regarded simply as a protection of liquidity, with little recognition of their function as a limit on the ability of the banks to create money.

The Reserve banks were explicitly authorized to conduct open-market purchases and sales of securities. Two reasons were given for including this provision. First, it was perceived as a technique of credit control, but in a rather roundabout way. Open-market sales were expected to raise interest rates and thus "make the discount rate effective" in times when banks were not borrowing from the Federal Reserve. Emphasis was on the withdrawal of loan funds rather than on reduction of bank reserves. Second, Reserve banks might carry on open-market purchases "as a method of profitably employing their funds in times of easy money, when member banks are making few calls on them for rediscount."[2] This attitude clearly reveals ignorance of the effect on bank reserves. A period of low discounts and easy credit might be a poor time for Federal Reserve purchases, if the policy objective were economic stabilization. It was nearly a decade before open-market operations developed into a rational instrument for influencing bank reserves through the initiative of the Federal Reserve.

Other Provisions. The law provided for a nationwide check-clearing system operated by the Federal Reserve and open to all banks willing to pay for checks at par. Member bank reserve accounts became the medium for settling balances, supplemented by a gold settlement fund for balances between one Reserve bank and another. The law also authorized member banks to deal in bankers' acceptances and in this manner helped create a national market for commercial paper. These provisions greatly helped to create a nationwide checking system and to enhance the geographic mobility of credit. The clearing system helped enhance the moneyness of checks; but a provision establishing deposit insurance included in the Senate version of the act was stricken out, and that experiment in Federal government protection of deposits was delayed another twenty years.

The Treasury was authorized, but not required, to use the Reserve banks to manage Treasury funds. The merits of this service were soon demonstrated during the war, and since then the Federal Reserve has performed extensively as fiscal agent for the Treasury. The Independent Treasury System was abolished in 1920.

The Federal Reserve Act, despite its novelties, still reflected the search for a structural panacea. It created a mechanism which was expected to function automatically in the public interest to prevent panics and adjust the supply of money and credit to the demand. Like the charter of the Second Bank a century earlier, the law was chiefly concerned with the mechanism. It created no great area of discretionary action, nor did it provide any standards for the exercise of such discretion.

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[2] Edwin W. Kemmerer, *The ABC of the Federal Reserve System*, Princeton University Press, Princeton, N.J., 1919, pp. 42–43.

A DECADE OF TRIAL AND ERROR, 1914–1923

The War Years, 1914–1918. The modern Federal Reserve is vastly different from the institution created in 1913, and one of the reasons for this is that the world in which the Reserve operates has become vastly different from the one in which it originated. The great change began in 1914, when war commenced in Europe.

The outbreak of war set off a sharp monetary panic in the United States, which was met in part by the issue of Aldrich-Vreeland notes. Conditions soon improved; purchases by European countries renewed the rapid upward trend that American output and prices had been on for nearly twenty years. Gold poured into the country. The banks had large excess reserves and expanded loans readily. The Federal Reserve banks had no way of checking credit expansion, for no one was rediscounting and they had no securities to sell. Indeed, Reserve banks bought some securities and acceptances to acquire earning assets and ignored the inflationary consequences of their action.

This period furnished an interlude within which the System got itself organized. It was soon apparent that regional autonomy of Reserve banks could not be very extensive in a unified national money and credit market. System policy required a considerable degree of unity. Within the System, two focal points of leadership developed—the Board and the New York Reserve bank. Actual predominance gravitated to the president ("Governor") of the New York bank, Benjamin Strong, by virtue of his forceful personality and the financial supremacy of his district. The Board was limited to a secondary role by diffusion of numbers and lack of direct operating responsibility. This tendency toward bipolarization created considerable friction during the 1920s.[3]

Hopes for substantial state-bank membership proved vain. By June, 1917, only 50 such banks had joined. Consequently, Congress amended the law to make membership more attractive, and in the next year nearly 500 joined. But most state banks preferred to stay out, as they have ever since, because of capital and reserve requirements.

The period 1915–1917 was one of the most severe peacetime inflations in American experience; wholesale prices rose by 60 per cent through March, 1917. Inflation put the nation's economy at full output and employment but left little slack for protection against worse inflation when the country joined the war in April, 1917.

Although the United States was an active belligerent for only a year and a half, during that period government finance unleashed an inflation of serious proportions. Federal expenditures, which averaged less than $1 billion annually before the war, totaled over $30 billion in the two years ending June, 1919. Although substantial increases in the newly developed income and profits taxes were enacted, taxes covered only about 30 per cent of expenditures.

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[3] Lester V. Chandler, *Benjamin Strong, Central Banker*, The Brookings Institution, Washington, 1958, pp. 39–53.

The resulting large deficits were financed by a large further expansion of credit, to which the Federal Reserve lent its support. Reserve banks did not buy large amounts of government securities directly but encouraged commercial banks to buy them or to lend to nonbank buyers. Reserve banks rediscounted at low rates notes secured by the government issues. Nearly $2 billion of Federal Reserve credit was created in this way, but a substantial part of this went to provide increased currency for circulation.

The banks had plenty of excess reserves, however, and were able to buy directly about $4 billion of the $22 billion of securities issued by the Treasury during the war. They also expanded their loans by nearly $6 billion, of which some $3 billion financed nonbank purchases of securities. Treasury policy was to encourage large nonbank purchases, to the extent of encouraging people to "borrow and buy" securities. Sales to banks, when necessary, should be short-term. It was hoped that the credit expansion resulting would be temporary, as the nonbank buyers would pay off their debts and the government would redeem bank holdings out of taxation.[4]

Table 16-1

Money, Velocity, Output, and Prices in the United States, 1914–1920

(Billions of dollars)

Year	*M*	V_g	*Output* (1914 *dollars*)	*Prices* (1914 = 100)	*GNP* (*current prices*)
1914	$12	3.2	$39	100	$39
1917	17	3.6	42	146	61
1918	20	3.8	46	167	77
1919	23	3.8	46	184	85
1920	24	3.8	44	210	92

Note: Money supply includes Treasury cash and deposits and is figure for June 30.
SOURCES: *Monetary and Banking Statistics; U.S. Income and Output.* Conversion to 1914 prices and computation of velocity are by the author.

The behavior of money, output, and prices is summarized in Table 16-1. Since output and velocity both rose only slightly, prices were left to absorb the impact of the big increase in the money supply. The two maintained almost exact proportionality, giving a striking illustration of the quantity theory.

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[4] *Ibid.*, pp. 108–112.

The resulting inflation was very substantial, though clearly not severe enough to cause any great rise in velocity. Inflation was ineffective in raising output, since the economy was fully employed. Its only function was to substitute for taxation as a way of reducing private consumption to permit the government to take a larger share of the relatively fixed output. Easy credit conditions enabled the Treasury to finance its deficits with only a slight rise in interest rates (from about 3½ per cent in 1917 to about 4½ per cent in 1919). This financing was achieved at the cost of substantial injustice to many income receivers (including bondholders) and set the stage for the severe postwar recession.

Mechanically, war finance was administered very smoothly, and the Federal Reserve earned many plaudits for its handling of Treasury funds and the public debt. For the first time during a major war, the gold standard was maintained. Although an embargo was placed on gold exports and informal pressure was applied to discourage domestic gold withdrawals, the country's money remained convertible. The Reserve, which had worked hard to draw much of the gold stock into its vaults, was given credit for this achievement.

It is paradoxical that an institution established to promote monetary stability should win its first public acclaim for its skill in making it possible to have a severe inflation with a minimum of administrative difficulty. The basic defects in war finance were the weak tax policy and the Treasury's eagerness for low interest rates. Federal Reserve officials worked to promote bond sales to nonbank investors and to persuade banks to limit credit expansion. Indeed, they conducted an informal but successful program of regulating margins for stock-market lending, which was unfortunately discontinued when the war ended. Still, Reserve activity was scarcely a major influence against inflation.

Postwar Boom and Bust, 1919–1921. After a slight recession at the close of hostilities in 1918, the economy resumed its inflationary upsurge, as shown clearly by Table 16-1. Federal deficit spending continued into 1919, and private investment, much of it of speculative nature, rose. By 1920 consumer prices were over 30 per cent above 1918 levels. Continued expansion of bank credit contributed to the inflation, and Federal Reserve credit also expanded. From an average of \$2.4 billion in November, 1918, it rose to \$3.5 billion two years later—the increase coming in the discount category. While most of this went into currency, bank reserves rose \$300 million as well.[5]

Federal Reserve officials were greatly disturbed by this continuing credit inflation; but the influence of the Treasury, which was still in-

[5] Board of Governors, Federal Reserve System, *Monetary and Banking Statistics*, Washington, 1943; *Historical Statistics of the United States*. Subsequent statistical data are chiefly from these sources.

volved in borrowing and refunding existing debt, kept them from taking any real restraining action until the end of 1919. By then the embargo on gold had been withdrawn, and gold was moving out of the country. Loss of gold reserves spurred quick Reserve action. Starting in November, 1919, discount rates were raised in several stages until they topped 5 per cent in New York in June, 1920. Both bank credit and rediscount volume, however, continued upward for several months.

Nevertheless, the bubble had burst. Beginning in May, 1920, prices and *GNP* expenditures began a sharp decline. Federal government finance, which shifted to a surplus, exerted a deflationary influence; but the chief downward pressure probably came from a drop in business inventory spending. This decrease was induced by changing expectations of prices and sales, and once the decline commenced, the downward acceleration effect came into play. Tightening of short-term credit added downward pressure in 1920.

GNP expenditures fell from $92 billion in 1920 to $70 billion in 1921—a drop of almost 25 per cent. Much of this decline was reflected in a great drop in prices, so that output fell only about 10 per cent, which was still enough to create extensive unemployment. Fortunately, fixed-capital expenditures did not decline seriously, and additional support came from exports and government spending. Inventory expenditures consequently soon bounced back, and the economy was substantially recovered by 1922, when output surpassed its previous peak.

Federal Reserve policy did little to ease the recession. High discount rates were kept in effect until May, 1921. These high rates did not cause any appreciable decline in rediscounting volume, which began to fall only when the demand for loans declined in 1921. But high discount rates and high member bank indebtedness kept bank credit tight during the deflation period in late 1920. Credit eased in 1921 only when the demand for it declined. Reserve bank credit followed the curve of business conditions, and bank reserves declined $200 million from June, 1920, to the following June.

There was no monetary panic, however, and the rise in interest rates was not severe. The Federal Reserve had followed the traditional policy of the Bank of England: when gold flows out and a crisis develops, raise the rate but lend freely. The higher rate was supposed to attract foreign capital and shut off the gold flow; in addition, it would apply pressure to dealers' inventories which would push prices down. Federal Reserve action in 1920–1921 achieved these results very effectively. Many observers felt that continuing tight credit was necessary to reduce excessive inventories and get the price level back where it belonged. They had confidence that a decline in spending would operate mainly to reduce prices and that no serious or long-lasting harm would result to output and employment. On the whole, experience tended to confirm their views, which were, unfortunately, not so appropriate in the next crisis.

One consequence of the credit stringency in late 1920 was that banks and others sold large amounts of government securities, thereby causing their prices to drop sharply. The Federal Reserve made no purchases to curtail this drop or provide added credit. Twenty-five years later this unpleasant experience for bondholders was cited as reason for continuing to support bond prices after World War II—although advocates ignored the fact that in 1920–1921 bondholders' purchasing power was sustained by declining commodity prices.

Although industry recovered quickly, this depression left a permanent mark in the farm sector. Wartime boom demands for food had encouraged great increases in farm debt, and the price collapse brought another of the familiar crises. Much criticism was directed at the Federal Reserve for its role in the deflation, but a congressional investigation of farm prices exonerated it from blame. High output and loss of export markets (when Europe revived) kept farm prices at low levels during the 1920s. The farm depression originated the chronic demands for "parity" which came to fruition in the 1930s.

The immediate effect of the farm crisis was to undermine the solvency of a large number of small rural banks. By 1921 the number of commercial banks had grown to about 30,000. In the previous decade, an average of about 100 banks a year had been obliged to suspend operations, 90 of these on the average being nonnational. In the years 1921–1928 inclusive, more than 600 banks suspended each year, of which about 100 were Reserve member banks. This performance indicated the shaky condition of nonmember banks but was hardly reassuring about member banks. Federal and state supervisory authorities were accused of "competition in laxity." Clearly the holder of a bank deposit still ran a risk, for the government had not succeeded in giving deposits the protection it had given paper currency.

New Concepts of Monetary Management. In 1922 and 1923, important changes appeared in the attitude of Reserve officials toward their responsibilities and techniques. This change was most pronounced in the case of Benjamin Strong. Disappointed at the performance of the economy since 1914, Strong argued that Federal Reserve policy could not function adequately if it followed mechanical guides such as its gold reserve or the commercial-loan theory. He rejected the idea of qualitative control, realizing that the nature of the IOUs rediscounted was no indication of the use to which a bank might put the proceeds. Strong came to hold the view that the proper goal of monetary policy was the stabilization of economic activity and that a quantitative rather than qualitative approach was needed.[6]

The members of the Board did not go so far in their views. In their annual report for 1923, they conceded that variations in credit should not always follow variation in gold reserves and came out reservedly for a countercyclical policy. But they pledged their faith to the qualitative standard by reiterating: "The Federal reserve system is a system of productive credit. It is not a system of credit for either investment or speculative purposes." They concluded "there will be little danger that the credit created and contributed by the Federal reserve banks will be in excessive volume if restricted to productive uses."[7] Recognizing that paper rediscounted was not a guide to the use of funds, they still argued that Reserve banks could and should determine and control the uses made of Reserve credit.

This period also saw the development of open-market operations as a full-scale technique of monetary control. The great increase in the Federal debt resulting from the war had enlarged the scope for such operations. In 1922, when discounting business was slack, several Reserve banks bought securities purely for income. They discovered that these purchases were promptly reflected in a further decline in member bank rediscounting. It became clear that open-market operations affected member-branch reserves. In consequence, the Board in April, 1923, resolved that open-market operations be conducted "with primary regard to the accommodation of commerce and business, and to the effect . . . on the general credit situation." The Board established an Open-Market Investment Committee of five Reserve bank presidents to participate in policy formulation but left little doubt that the last word remained with the Board itself.

Thus Federal Reserve thinking shifted from a role of passive accommodation to one of active participation in the state of the economy. The shift in objective was matched by the shift in understanding and use of techniques.

TRIUMPH AND TRAGEDY, 1923–1932

"New Era" Prosperity. It was an ironic paradox that the greatest failure of Federal Reserve policy came after its objectives, theories, and powers had been developed to a high degree of sophistication and after their exercise had won extensive public confidence. In retrospect, it is clear that the Federal Reserve and the financial system still contained serious deficiencies which rendered them very vulnerable.

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[6] Chandler, *op. cit.,* pp. 194–204.

[7] Board of Governors, Federal Reserve System, *Annual Report,* Washington, 1923, pp. 32–35. The idea that discount rates should be varied countercyclically was clearly stated on page 10 of the report.

Beginning with the recovery of 1922, the American economy entered a period of sustained prosperity and growth. From 1923 to 1929, output expanded by about one-fourth. Despite mild recessions, average annual unemployment never exceeded 5 per cent of the labor force. Consumer prices remained stable during this prosperity and actually declined slightly after 1926.

Prosperity was sparked by high levels of investment and a rapid rate of technical progress. Industrial productivity increased rapidly and raised real incomes and leisure as well as profits. Mass production and distribution of automobiles, and the attendant stimulus to highway building and such industries as steel, glass, rubber, and petroleum, were dominant factors in stimulating investment.

Federal Reserve Policy, 1923–1927. Federal Reserve actions in the mid-1920s were chiefly directed at offsetting fluctuations in the domestic economy. In prosperous 1923, Reserve banks sold almost $300 million of securities and raised discount rates from 4 to 4½ per cent. In 1924, in the face of a mild recession, discount rates were cut to 3 per cent and $400 million of securities purchased. Gradual tightening was imposed in 1925–1926 again, to be modified in 1927 when another mild recession developed. The New York discount rate temporarily went from 4 to 3½ per cent, and about $300 million of securities were purchased. These actions did not eliminate the tendency (caused by rediscount volume) for Reserve bank credit to rise in booms and decline in recessions. But bank interest rates did follow the Reserve rediscount rates, so that credit on the whole was a countercyclical influence, whatever its importance.

During this period, Reserve officials, particularly Benjamin Strong, were concerned with aiding in restoration of the international gold standard. They recognized that low interest rates in the United States would help Great Britain and other countries to return to gold. Long-term capital would be encouraged to flow out of the United States, and short-term international balances would not tend to flow in. These considerations contributed to the easy-money policies adopted in 1924 and 1927. In retrospect, they were criticized for adding fuel to the speculative fire which was developing, and some Reserve officials conceded that they might have gone too far in 1927; but these policies were neither extreme nor irreversible.

The Big Bull Market. By contrast to the placid condition of the productive economy, stock-market speculation reached a state of turbulence in the late 1920s. From a low point in 1921, stock prices moved upward with only slight interruptions and by 1926 had doubled their 1921 values. By 1925 some Reserve officials expressed concern over speculation, but their attention was focused on the use of bank credit rather than on speculation itself.

At first stock prices paralleled rising profits, but as time passed, the price rise became increasingly speculative. Margin requirements, subject to no legal restrictions, were often as low as 20 per cent, and credit buying grew rapidly. The volume of brokers' loans rose from $2 billion in 1924 to $4 billion in 1927 and reached a peak above $8 billion in 1929. By the end of 1928, member bank loans on securities amounted to almost $10 billion and constituted 40 per cent of their total loans! This growth was made possible by a rapid rise of time deposits; indeed, some corporations engaged in arbitrage by issuing stock and using the proceeds to acquire time deposits or make loans to brokers. While neither the money supply nor *GNP* velocity rose appreciably in the late 1920s, transactions velocity, as measured by the turnover of demand deposits, shot up from 38 in 1926 to 54 in 1929.

From mid-1927 to mid-1929 stock prices approximately doubled, as did the volume of stock-market credit. Rising prices enabled speculators to pyramid their holdings, since they could borrow more on a given stock when its price went up. The ease of floating new stocks led to a proliferation of holding companies, particularly in public utilities. Investment companies, which had not amounted to much in American finance previously, also multiplied—Galbraith estimates that by 1929 new ones were being spawned "at the rate of approximately one each business day." Some of these were downright fraudulent, and many more were simply carelessly thrown together and incompetently managed, with little accurate public disclosure of their affairs. The bull market encouraged misrepresentation, manipulation, and slipshod conduct among many other financial and nonfinancial firms as well.[8]

Contrary to popular belief, the proportion of people speculating was never large—perhaps one million. But the psychology of the market was far-reaching; it was a tangible symbol of the new era of prosperity and easy wealth. For every critic, there were a dozen solemn pundits prepared to prove that the boom must continue. Faith in the wisdom of Wall Street became an element in the same dogmatism which idolized the gold standard, balanced budgets, and *laissez faire* without any real functional understanding of any of them. Reverent respect for wealth was nowhere better exemplified than in the Federal government. The prevailing attitude with President Coolidge and his advisers was that the stock boom was, if anything, a good thing, and certainly there was no need or justification for the government to meddle with it. To be against the market was to be against America.

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[8] John Kenneth Galbraith, *The Great Crash*, Houghton Mifflin Company, Boston, 1955, p. 54.

By the beginning of 1929 the market contained the seeds of its own destruction. Dividend yields on stocks had fallen below the interest on bonds, and credit costs were rising on margin loans. There was little point in holding stocks unless their prices continued to rise, and there was increasing likelihood that prices could not continue to rise. When the market stopped going up, it would start going down—and rapidly.

Federal Reserve Policy, 1928–1929. Federal Reserve officials were caught between the desire to reduce the flow of credit into speculation and the desire not to interfere with the credit needs of nonfinancial business. Members of the Board, faithful to the qualitative tradition, believed speculation could be curbed by pressure on member banks not to lend on securities. The New York Reserve bank officials believed that no such separation of purpose was possible—if loans of any kind were made, funds would find their way to where returns were high, which meant stock-market lending. Indeed, many nonfinancial businesses that appeared entitled to "productive" credit were actually lending large sums into stock-market credit. The New York officials believed the only approach was to tighten credit for all comers but feared this might reduce real investment, cause a recession, and contribute to international financial imbalance.

Actual policy vacillated between these points of view. Once the 1927 recession was clearly over, the previous ease of credit was ended early in 1928. Discount rates moved up from 3½ to 5 per cent, and Reserve banks sold $400 million of securities—two-thirds of their holdings. The member banks merely increased their rediscounts, and in the autumn the Reserve banks unwisely purchased acceptances in the open market to aid in financing the harvest—a triumph for the qualitative approach. By the end of 1928 the volume of Reserve bank credit was $300 million higher than a year before; but rising demand for loans did pull interest rates up.

The rise of market interest rates convinced Reserve bank officials that discount-rate increases were imperative, but repeated petitions for increases were turned down by the Board. Instead, the Board issued an ambiguous directive to the Reserve banks indicating that they should curtail discounts for banks lending for speculation. Some curtailments were made, and interest rates rose further. Stock prices faltered, then resumed their dizzy rise. In August the New York discount rate (only) was raised, but purchases of acceptances were increased and the net effect was to ease, not tighten, credit. Reserve officials remained afraid of the effects tight money would have on the domestic and international economic situation and never undertook a strict curtailment.

Stock prices reached their pinnacle in October, then broke dramatically. The crash was undoubtedly brought on in part by evidence that a recession was beginning in the productive economy. Once the decline began, the inherent weaknesses of the market became apparent. Speculators' margins were wiped out, and when they could not put up additional funds, their stocks were sold on the falling market. Jerry-built investment companies collapsed, and many financial irregularities which could be concealed as long as prices rose were brought to light. In about a month stock prices fell off one-third from their peak values.

The Federal Reserve officials never directly attacked stock prices or speculation itself, nor did they operate effectively to curtail the flow of credit into speculation. In their defense, it must be admitted that their reluctance to undertake general credit stringency was reasonable and that the tightening of credit which occurred in 1929 did impair real investment and upset the flow of international capital.

Perhaps there was more Reserve officials could have done. They could have asked for authority to impose margin controls like those informally administered during the War. Such authority would have been bitterly opposed by the financiers and quite likely would not have been supported by a complacent Congress and administration. Professor Galbraith argues that in early 1929 "a robust denunciation of speculators and speculation by someone in high authority and a warning that the market was too high would almost certainly have broken the spell" and reversed the upsurge. But he feels that "the Federal Reserve was less interested in checking speculation than in detaching itself from responsibility for the speculation that was going on."[9]

Undoubtedly the Board, loaded as it was with mediocrities appointed by Harding and Coolidge, did not distinguish itself. Had it succeeded in breaking the speculation by some heroic move, however, it is easy to imagine a repetition of the inquisition of the early 1920s. If there is to be blame for complacency, it belongs with Congress and the President.

Much of the discussion of the stock-market crash is biased by the assumption that it rendered inevitable the full sequence of deplorable events which sent the economy into deep depression; that is, given 1929, 1933 was inevitable. This is a great exaggeration. The stock panic of October, 1929, soon halted. In December, stocks began rising again and continued to rise until April, 1930, at which time prices had regained the levels of late 1928. The interim was certainly a serious dip but hardly enough to wreck the economy for three years afterward. The real drop in stock prices began in May, 1930, from which point they fell by 80 per cent to the low of 1933. This drop was a symptom of the decline in profits and dividends and was quite separate from the panic itself. It took a great many more blunders than those of 1929 to bring the economy to its wretched state of 1933.

[9] *Ibid.*, pp. 37, 40.

DOWN INTO DEPRESSION, 1929–1933

The Boom Ends. The economy took a downward turn in July, 1929, several months before the market crash. Why did it? The condition of productive business in the period since 1927 had been one of placid prosperity by comparison with the turbulence of the stock market. Although unemployment was low, there was no great pressure on productive capacity, as evidenced by the absence of price increases. In fact, the boom probably ended because capacity had outrun current or prospective demand, so that subsequent capital expenditures were reduced. The investment boom had been fed in part by war demands at home and reconstruction needs abroad, as well as by the initial requirements of a large motoring population. These demands had weakened, and the normal growth of consumption was insufficient to compensate by itself. The stock boom and attendant psychology encouraged businesses to add unduly to their capacity; in addition, a considerable volume of speculative construction took place, particularly in office buildings.[10] The Empire State Building, on which construction began in 1929, is a perfect example.

The downturn in mid-1929 thus resulted chiefly from a slowing down of investment because firms had enough capital, a tendency aggravated slightly by tightening of credit. Once the economy began declining, added sources of weakness soon developed. No doubt the stock-market crash dealt a further blow to investment, both in its psychological effect and in making funds harder to obtain; but in view of the stock reversal already noted, the crash can hardly have been a major force in the downswing.

Cumulative Downswing. The chief instruments of deflation were the multiplier and the accelerator. As *GNP* fell, induced investment, particularly in inventories, dropped. Businesses with excess capacity had no incentive to replace worn-out capital. As investment dropped, it pulled down consumer incomes and consumer spending, which in turn made the investment outlook worse. In 1920–1921, business firms were short of fixed capital and therefore never lost the incentive to expand. In 1929 they had too much capital, and as demand fell further, the excess became worse. By 1933 *GNP* expenditures had fallen by almost half from 1929—from $104 billion to $56 billion. Table 16-2 shows how the various spending components contributed to this decline.

Consumer spending was the biggest contributor to the decline—it fell by $33 billion. This decline is most accurately attributed to the fall in disposable incomes, however, for actually the percentage of income consumed rose, until at the lowest level of the downswing consumers as a group were spending more than their incomes. The drop in consumption was induced; it was not an independent cause of the decline.

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[10] Robert A. Gordon, *Business Fluctuations,* Harper & Brothers, New York, 1952, pp. 367–389.

Table 16-2
GNP Expenditures, 1929–1933

(Billions of dollars)

Year	*GNP*	Consumption	*C/PDI*, per cent	Domestic investment		
				Fixed	Inventory	Total
1929	$104.4	$79.0	94.9	$14.6	$1.7	$16.2
1930	91.1	71.0	95.4	10.6	−0.4	10.3
1931	76.3	61.3	96.1	6.8	−1.3	5.5
1932	58.5	49.3	101.2	3.5	−2.6	0.9
1933	56.0	46.4	101.3	3.0	−1.6	1.4

Year	Exports	Imports	Government purchases	
			Federal	State and local
1929	$7.0	$6.3	$1.3	$7.2
1930	5.4	4.8	1.4	7.8
1931	3.6	3.4	1.5	7.7
1932	2.5	2.3	1.5	6.6
1933	2.4	2.3	2.0	6.0

SOURCE: *U.S. Income and Output.* Figures are rounded and may not add up.

Domestic investment was the chief villain. By 1933, it had fallen 90 per cent below 1929. Certainly the initial decline in fixed investment was largely an autonomous development, but in subsequent years a large part was induced. Inventory reduction was clearly an induced response to falling sales. Fixed capital investment fell below the $7 billion annual rate of depreciation—something which would not have happened if the customers had not vanished. The decline in investment was aggravated by declining business income and bankruptcies—corporations as a group registered losses of about $2 billion a year in 1932 and 1933. Housing construction fell off, partly because of lower consumer incomes. To all these depressants was added the credit problem, to which we shall return.

The decline in export sales was also very large in percentage terms and reduced domestic income by nearly $5 billion by 1933. The drop in exports was largely induced by the decline in American foreign lending which began in 1928 and by the subsequent declines in foreign incomes resulting from lower American imports. The United States aggravated the latter decline by the Smoot-Hawley Tariff in 1930, and many other countries retaliated by increasing import restrictions. As we noted in Chapter 13, the European economy was in shaky condition financially when the downswing began in 1929 and was thus very vulnerable to the shock from America. The European collapse reacted upon the United States through reduced export sales and gold withdrawals.

Of all the components of *GNP*, government purchases remain most stable. Although Federal purchases rose as the Hoover administration enlarged public-works programs, the amount was comparatively tiny and failed to offset declines in state and local government spending which resulted when tax revenues fell. Furthermore, the benefits of Federal spending were seriously undermined by the great increase in tax rates which was adopted in 1932 to reduce the budget deficit.

Financial Collapse. The downswing was aggravated by the almost continuous banking crisis which finally terminated in the drastic measures of 1933. As business income fell, bank loans went into default, undermining bank solvency. Public alarm about bank safety led to increased withdrawals of currency, which reduced reserves and forced the banks to curtail lending—a tendency accentuated by pessimism. Credit curtailment forced business spending down, which in turn reduced the ability of many other firms to pay their debts. Thousands of banks were forced to close, and depositors were deprived of spending power just when it was needed most.

What was the Federal Reserve doing during the worst financial panic in American history? Once the downturn was apparent in 1929, the Reserve banks wasted no time in relaxing credit tension. Rediscount rates were cut repeatedly until they were down to 2 per cent at the end of 1930. Reserve banks bought $500 million of securities, which was enough to offset the decline in rediscount volume and keep member bank reserves from declining. Bank credit eased and loan rates declined; but the renewed stock collapse in mid-1930 spread to the markets for lower-grade bonds and made new issues almost unsalable. At the same time, banks were reducing the availability of credit to risky borrowers. Bank loans were reduced $4 billion in 1930, and as they declined, banks found their holdings of eligible paper, and thus their access to Federal Reserve credit, declining also.

Financial conditions turned sharply for the worse in 1931 as the United States felt the backwash of the European panic. In six weeks, beginning in September, the gold stock was depleted by $700 million, and over $400 million of currency was withdrawn from the banks. Faced with a crisis, the Federal Reserve blundered seriously. Rediscount rates were raised from 1½ to 3½ per cent as the Reserve reverted to the traditional device for protecting the gold reserve. Member banks' discounts increased nonetheless, but reserves were dangerously depleted. The shock penetrated financial markets, and all categories of interest rates shot up. In defense of the rate increase, it may be noted that the Bank of France was threatening to withdraw funds held on deposit in the United States unless interest rates were raised. As it was, the gold drain halted.

The crisis of 1931 was worsened by the unwillingness or inability of the Federal Reserve to enlarge its credit. Many member banks were desperate to borrow but had no eligible paper or government securities for collateral. Reserve officials were reluctant to increase open-market purchases of securities, because this move would reduce rediscounting and leave the Federal Reserve with less collateral to back Federal Reserve notes![11] In any case, bank failures increased markedly—nearly 2,300 banks closed in 1931, holding deposits of $1.7 billion. Some critics, noting a slight reversal of the downward trend of industrial production early in 1931, felt that the downswing of the economy might have halted there if the monetary panic had not developed.

The Federal Reserve's predicament was finally resolved by the passage of the Glass-Steagall Act in February, 1932. This measure authorized the Reserve banks to lend to member banks on any collateral they wished to accept and permitted Reserve bank holdings of government securities to serve as collateral for note issues. With this, the restrictions of the commercial-loan theory were abandoned, but not until they had done much harm.

The Reserve banks thereupon embarked on an aggressive campaign to ease credit. Beginning in March, they purchased over $1 billion of securities in the remainder of 1932. Discount rates were reduced. By the end of the year, member banks had $500 million of excess reserves, and most interest rates had declined.

At the same time the government took another important step to aid the banks. In January, 1932, Congress created the Reconstruction Finance Corporation to make emergency loans to banks and other businesses. During 1932 the RFC extended about $1.5 billion of loans, of which banks received about $850 million.

As a result of these measures, the rate of bank failure in 1932 was reduced, although it was hard to be complacent when nearly 1,500 banks closed with $700 million of deposits. Late in 1932 a new wave of panic began to rise. Many banks had become seriously insolvent through loan defaults, and their continued closings led to panic withdrawals

[11] E. A. Goldenweiser, *American Monetary Policy*, McGraw-Hill Book Company, Inc., New York, 1951, pp. 124, 158–160.

from others. In October, 1932, the governor of Nevada declared a statewide "bank holiday," and the device spread to other states. This innovation intensified the panic where banks were still open. In February, 1933, nearly $1 billion in currency was withdrawn from the banks, and more than twenty states closed their banks. On March 4, the day of his inauguration, President Roosevelt persuaded the governors of the other states to close their banks as well. Two days later Federal authority was placed behind the closing, and the government also suspended gold payments, although there had been no serious depletion of the gold stock.

The new President's words and his willingness to take forthright action restored a measure of public confidence. Rapid steps were taken to reopen the solvent banks. The RFC was authorized to give further assistance by buying preferred stock of banks, and the Federal Reserve was permitted to issue Federal Reserve bank notes requiring no gold reserve. By March 15, banks accounting for 90 per cent of the country's deposits were back in operation, and many of the remainder opened subsequently. Currency flowed back, and the panic was over. Nevertheless, 2,700 banks failed in 1933, with a total of $2.9 billion of deposits.[12]

The experience of 1929–1933 demonstrated the serious deficiencies of the concepts on which monetary policy was based. Commercial-loan provisions for rediscount and for collateral of Federal Reserve notes made these notes less available to banks just as the need for them increased, and the link to the gold reserve increased this difficulty. "Protecting" the gold reserve was not ideal medicine for the troubles of 1931. The vast number of bank failures also pointed to inadequacies in the System. The Federal Reserve was designed to aid liquidity rather than to help out banks whose solvency was impaired. Insolvency was regarded as a sign of incompetence, to be ferreted out by examination and dealt with by suspension. Even in the 1920s this was a poor remedy, and when the economy began to move into decline, it was disastrous. As E. A. Goldenweiser noted, "The examiner finding that a bank's assets at current market prices were not equal to its liabilities would cause the bank to be declared insolvent. Bank suspensions by administrative action contributed to difficulties by tying up funds, causing the dumping of assets and spreading alarm." Much of the impairment of assets would have been made good once recovery began.[13] The high rate of failure outside the Federal Reserve System suggested the folly of letting banks decide whether they wanted to be regulated effectively.

Economic Welfare. The real adversities of the Depression were generated by declining incomes and output, unemployment, bankruptcy, and increased debt burdens. The behavior of money and its relation to prices, output, and employment is shown by Table 16-3.

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[12] Raymond Kent, *Money and Banking*, 3d ed., Rinehart & Company, Inc., New York, 1956, p. 354. Total excludes over 1,200 banks which reopened subsequently.

[13] Goldenweiser, *op. cit.*, pp. 170–171.

Table 16-3
Money and the Economy, 1929–1933

(Dollar figures in billions)

Year	*M*	V_g	*GNP*	*Output* (1929 *prices*)	*Prices* (1929 = 100)	*Unemployment, per cent*
1929	$27	3.9	$104	$104	100	3
1930	26	3.6	91	95	96	9
1931	24	3.2	76	89	86	16
1932	21	2.8	59	75	78	24
1933	20	2.8	56	73	77	25

SOURCES: *Monetary and Banking Statistics; U.S. Income and Output.* Conversion of price and output data to 1929 base and calculation of velocity are by the author.

The money supply declined by over $6 billion from 1929 to 1933, reflecting the drastic curtailment of bank loans, which fell from $36 billion to $16 billion. Velocity also declined, as money was drawn into idle balances for safety and to guard against worsening incomes and falling prices.

Total *GNP* expenditures fell by over 40 per cent, which in turn reduced output and prices. The reduction of output by one-fourth created unemployment of a similar proportion of the labor force. This meant severe hardship for the unemployed, for there was no program of government unemployment compensation, and the amount of local relief or private charity was pitifully small. But President Hoover resolutely blocked efforts to extend Federal assistance to relief programs.

The crushing burden of deflation also fell severely on debtors—business firms, farmers, and home buyers. As their sales revenues declined, many businesses went bankrupt and thereby added to the disorder and demoralization by forced liquidations. Mortgaged farms and homes were subjected to extensive foreclosure, often by creditors such as banks who were themselves desperate to raise funds to pay *their* debts. Such confiscations of property met violent resistance in many areas; often whole communities united to see that foreclosed properties were "sold" for a nominal price at sheriff's sale to the original owner. Many states adopted laws providing for a moratorium on debts that made them temporarily uncollectible—which increased the problems of the banks.[14]

STAGNATION AND REFORM, 1933–1940

Financial Reforms. New Deal spokesmen liked to think that their program contained three elements—relief, recovery, and reform. Monetary and financial measures were included in all three categories, but chiefly in the third. Once the panic ended in 1933, government investigators did a thorough job of exposing the shortcomings of the financial structure and policies of the previous years. The old dogmas, which had worked so badly in 1929–1933, were discarded. The result was the most pervasive overhauling of the nation's financial system ever undertaken. In general, the financial reforms did not do much to restore prosperity, but they vastly reduced the danger of another crisis like that of 1929–1933. Rather than deal with individual enactments in sequence, we shall simply summarize the most important end results.

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[14] Broadus Mitchell, *Depression Decade*, Rinehart & Company, Inc., New York, 1947, p. 186.

1. *Gold:* In 1933–1934 the United States abolished the gold-coin standard and raised the price of gold from $20.67 (where it had been for 100 years) to $35 an ounce. Gold coins and certificates ceased to circulate as money. Instead, the country went on a modified gold-bullion standard, with the Treasury standing ready to sell bullion for export or manufacture. Private ownership and trading of gold were severely restricted. Gold was still the ultimate reserve of the monetary system, but its influence on monetary policy was greatly reduced.

2. *Silver:* The United States resumed a silver-purchase program similar to that of 1878–1893. In 1934 Congress directed the Treasury to buy silver at prices above the market, but below the monetary, value. At first considerable discretion was allowed, but in 1939 the Treasury was required to take all domestic production offered to it at 71 cents an ounce. The program did enlarge the money supply slightly, but its chief objective was to subsidize producers.

3. *Federal Reserve structure:* In 1935 the Federal Reserve Board was abolished, and in its place was established a new Board of Governors, to which (with two exceptions) new men were appointed. To increase the Board's independence, the ex officio memberships of the Secretary of the Treasury and the Comptroller of the Currency were revoked. Terms of office of Board members were lengthened, and they were protected against removal except for specified cause. The Federal Open-Market Committee was given statutory authorization and was to consist of the seven Board members plus five Reserve bank presidents. While the general intent of these and other changes was to increase the power of the Board over the Reserve banks, the Open-Market Committee formalized the role of Reserve bank presidents in System policy.

4. *Federal Reserve powers:* The Board was given authority to alter reserve requirements for member banks up to levels double those set in 1917. The Board was also authorized to set minimum margin requirements for securities loans. This measure, which was so badly needed in 1929, was significant in that it set no limits to Board discretion and gave the Board authority over *all* lenders, not merely banks.

The Board was authorized to set maximum interest rates on member bank time deposits, while member banks were forbidden to pay interest on demand deposits. The power of the Board to dictate rediscount rates to individual Reserve banks was made explicit.

5. *Deposit insurance:* The Federal Deposit Insurance Corporation was established with authority to insure individual deposits of commercial banks up to $5,000 (later raised to $10,000). A proposal to make insurance contingent on joining the Federal Reserve System was rejected, and membership in FDIC became available to all commercial banks. Most of them joined. FDIC was given authority to examine banks under its jurisdiction, which meant a great extension of Federal bank supervision to state-chartered banks. In this program, the government finally recognized the monetary status of deposits as deserving of the type of guarantee extended to bank notes in 1863.[15] Under a separate organization, deposit insurance was also extended to savings and loan associations.

6. *Financial regulation:* Extensive regulations and structural changes were imposed on banks, other financial institutions, and on corporate financial practices generally. The government established the Securities and Exchange Commission, with authority to require corporations issuing securities to make full and truthful disclosure of their circumstances. Securities exchanges were also brought under regulation to regularize trading and prevent fraud and manipulation. In 1940 activities of investment companies were brought under SEC regulation, requiring chiefly full disclosure of activities. Commercial banks were required to divorce themselves from previous affiliations with investment banking and investment companies. Such connections had been an important channel for getting bank credit into speculation and had served to weaken the banks when these security operations began to turn sour.

7. *Government credit agencies:* An extensive program of government loans and guarantees was undertaken. The RFC continued to play an active role—first, in bailing out firms in difficulty; later, in furnishing funds to small businesses. New financial institutions were particularly significant in relation to agriculture and housing. Prominent among many new farm-credit agencies were the Rural Electrification Administration, which carried on extensive lending for the extension of power facilities in rural areas, and the Commodity Credit Corporation, established to make crop loans to farmers as an adjunct to the price-support programs which began at that time.

In the field of housing, the government created in 1933 the Home Owners Loan Corporation (HOLC), designed to refinance existing mortgages to avert foreclosures. The following year the Federal Housing Administration was established, with the authority to insure home mortgages. In 1938 the Federal National Mortgage Association was set up to provide a secondary market for mortgages similar to that provided by the Federal Reserve for commercial paper and government securities.

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[15] Paradoxically, the measures of the 1930s included the final abolition of the national-bank note.

Beyond the areas of agriculture and housing, the other major innovation was the creation of the Export-Import Bank in 1934. Its function was to provide credit for foreign-trade transactions at a time when private lending was greatly disorganized.

Some of these agencies and activities, such as RFC and HOLC, were chiefly defensive in purpose. They were designed to provide financial relief for firms and individuals whose long-run solvency appeared certain but whose immediate situation was desperate. Most of the agencies also had the objective of promoting lending and spending to get out of the Depression. Some agencies loaned government funds directly or provided them to private financial institutions. Others guaranteed or insured the assets or liabilities of financial institutions. While they probably made some immediate contribution to recovery, their long-run effects in changing the character of the country's financial structure were much greater.

8. *Other effects:* Besides these governmentally imposed changes, one should not ignore the direct effects which the Depression had on financial institutions and practices. One effect was to wipe out a great number of weak banks. The number of commercial banks dropped from 25,000 in 1928 to 14,000 in 1933. Another consequence was to create a willingness among the more upright and honest business firms to undergo more scrutiny and regulation in order to help restore public confidence and to protect themselves against dishonest competition.

The Recovery Program. President Roosevelt and his advisers were strongly influenced by the conviction that depression was at root a problem of prices. If prices could be restored to their earlier high levels, they felt, producers would have the incentive to expand production, and unemployment would disappear. This outlook, while superficially plausible, proved unfortunate as a basis for policy. For the real trouble was that spending on goods and services was too low; low prices were merely a symptom of inadequate spending. Measures to raise spending would have taken care of prices as well as output and employment. Unfortunately, not all measures to raise prices would necessarily raise output and employment. To a disappointing degree, the New Deal relied on measures which tended to raise prices by curtailing supply or competition and which did not stimulate higher *GNP* expenditures.

One of the first attacks on the price problem came through the revaluation of gold in 1934. The administration seems to have been influenced by a theory that raising the price of gold would automatically raise commodity prices as well. The reasoning went something like this: an increase in the price of gold means a decline in the value of the dollar, which means an increase in the level of commodity prices. Such semantic juggling had little influence on a recalcitrant economy, and prices rose very little in the next few years. The chief effect of the measure was to reduce the foreign-exchange value of the dollar, a variation which contributed to the general unsettlement of the international economy. The action may have stimulated higher American exports, but the method was hardly ideal.

Revaluation and the withdrawal of gold from domestic circulation raised the value of the monetary gold stock to about $8 billion in 1934. Subsequently, gold flowed in at an increasing rate from Europe—chiefly in capital flight—and by the end of 1940 about $14 billion worth had been imported. This inflow greatly increased bank reserves and created conditions of monetary ease.

The major weight of New Deal recovery policy was concentrated on nonfinancial measures. In 1933 major emphasis was on the agricultural adjustment program (AAA), designed to raise farm prices by curtailing supply, and on the National Recovery Administration (NRA), designed to raise industrial prices by curbing competition and to raise wages by encouraging unionization and collective bargaining. Both of these measures were held unconstitutional in 1935–1936, but some of their principles were reenacted in other legislation. Their basic restrictionist approach was unsound, and they made no appreciable contribution to general recovery. Their principle effect was to impair free competition in several sectors of the economy, in some cases permanently.

Much sounder were those programs which increased government expenditures and thus raised *GNP*. The government undertook for the first time a program of general relief to the needy and unemployed, and public-works expenditures were greatly enlarged under such programs as TVA. These benefits were undermined by reliance on an unfortunate tax program. Contrary to popular mythology, President Roosevelt sought to avoid deficit spending, and consequently taxes were steadily increased in 1933–1937. Many of the taxes were severely burdensome on low-income groups—notably the processing tax on farm products under the first AAA, the increased excises on tobacco and alcohol, and the social security wage tax. Other taxes on high individual and corporate incomes were adopted in a spirit of hostility to business which helped create an atmosphere adverse to investment. On the average, the increases in Federal spending over 1932–1933 levels were matched by increases in tax revenues. New Deal deficits were no larger, on the average, than those of the last two years of the Hoover administration, and as a percentage of expenditures, they were much smaller. The tax increases reduced disposable incomes and slowed the rise in consumption. Thus the New Deal can hardly be taken as a case study in countercyclical fiscal policy.

The State of the Economy, 1933–1940. The period of the New Deal was one of great activity in government. Its acts created many controversies, enlisted a vast number of devoted partisans, and incurred bitter animosities. The emotional tensions aroused have not died down yet. Some of the reform measures, particularly in finance, were highly desirable and strengthened our modern economy. Some of the other policies, designed to shield politically powerful pressure groups against competition and change, were deplorable. One general conclusion about the New Deal stands out—it failed to get the country out of the Depression.

Table 16-4

GNP Expenditures, 1929–1940

(Billions of dollars)

Year	*GNP*	Consumption	*C/PDI*, per cent	Domestic investment		Government purchases	Net exports
				Fixed	Inventory		
1929	$104.4	$79.0	95.0	$14.6	$1.7	$ 8.5	$0.8
1933	56.0	46.4	101.3	3.0	−1.6	8.0	0.2
1936	82.7	62.6	94.6	7.4	1.0	11.8	−0.1
1937	90.8	67.3	94.7	9.5	2.2	11.7	0.1
1938	85.2	64.6	98.4	7.6	−0.9	12.8	1.1
1939	91.1	67.6	95.9	8.9	0.4	13.3	0.9
1940	100.6	71.9	94.5	11.0	2.2	14.1	1.5

SOURCE: *U.S. Income and Output.*

In 1933 one-fourth of the labor force was unemployed. In subsequent years, conditions improved, but unemployment never went below 14 per cent in the years through 1940 and averaged 17 per cent. Output did reach the 1929 level again (temporarily) in 1937, but the population and labor force had increased substantially by then. Real personal disposable income per capita matched its 1929 level only in 1940. Table 16-4 traces the behavior of *GNP* expenditures in the New Deal era.

The largest contributor to increasing *GNP* between 1933 and 1940 was consumption, but its increase was induced by higher incomes—indeed, spending rose less than incomes. The chief autonomous forces making for recovery were investment and government purchases. The shift from negative to positive inventory investment helped, but fixed capital investment remained anemic throughout the decade. In 1936–

1940, it exceeded capital-consumption allowances by only about $1 billion a year. This weakness of investment contributed to the slow growth of consumer incomes and expenditures. It is possible that the climate of political opinion contributed to the stagnation of investment; many businessmen were upset by taxation, labor policy, and the termination of the gold standard. But a more vigorous growth of consumer demand would certainly have encouraged greater investment.

Government fiscal policy provided a means to break this vicious circle. The increased government purchases after 1933 contributed almost as much as rising investment to the growth of *GNP*. Had tax rates been left at their pre-1933 levels, however, fiscal policy would have exerted much more stimulus to consumption, which would in turn have encouraged more investment.

Table 16-5
Money, Velocity, Output, and Prices, 1929–1940

(Dollar figures in billions)

Year	*M*	V_g	*GNP*	*Output* (1929 *dollars*)	*Prices* (1929 = 100)
1929	$27	3.9	$104	$104	100
1933	20	2.8	56	73	77
1936	31	2.7	83	100	83
1937	32	2.9	91	107	88
1938	31	2.7	85	102	83
1939	35	2.6	91	110	83
1940	40	2.5	101	120	84

Note: Money-supply figure is for June and includes Treasury deposits.

SOURCES: *Monetary and Banking Statistics; U.S. Income and Output.* Velocity calculation and conversions to 1929 are by the author.

Money and Recovery. Once the panic ceased in 1933, the Federal Reserve receded into the background. After substantial open-market purchases brought Reserve holdings of government securities to $2.4 billion, that level was maintained until 1937. Rediscount rates, which had been raised a full point during the panic, were cut to 1½ per cent in early 1934. The gold inflow furnished member banks with plenty of reserves, and the volume of rediscounting fell to almost nothing after 1934. Table 16-5 shows the relationship between the money supply and the behavior of *GNP* expenditures during the New Deal. By 1936 the money supply was substantially above its 1929 level. Velocity remained low, however, and tended to decline further as interest rates fell.

The behavior of prices illustrates an important principle. With the temporary exception of 1937, prices remained stable during the period 1936–1940, while output was growing by 20 per cent and the money supply by nearly 30 per cent. With substantial unemployment, the rise in *M* and in *GNP* expenditures did not tend to raise prices but did increase output and economic welfare.

Two forces operated to raise the money supply after 1933. The first was Federal deficit spending financed by selling securities to banks. Bank holdings of United States securities rose about $10 billion in 1934–1940 inclusive. The deficits put the new money into the main money circuit, so that its *GNP* velocity was relatively high. The second force was the rise in the value of the gold stock from $4 billion in 1933 to $22 billion in 1940. Much of this increase represented capital flight and led to increased time deposits or idle cash; thus it did not raise *GNP* very much. Gold also raised bank reserves, so that by 1940 excess reserves exceeded $6 billion.

Bank *loans* increased hardly at all; they were $16.5 billion in mid-1933 and $17.4 billion in mid-1940. In part, this condition resulted from a slack demand for credit, but chiefly it reflected a pessimistic attitude toward risk by the banks. This attitude was clearly reflected in interest rates. Short-term United States securities consistently sold at rates below 1 per cent in the 1930s, as banks eagerly snapped them up—indeed, in 1938–1939 their rates averaged less than 0.1 per cent per year! By contrast, interest rates on medium-risk corporate bonds (Baa classification), which had risen in 1929–1933, fell only slightly and remained as high as in the earlier 1920s. Bank interest rates were low, but the banks were not eager to accommodate high-risk borrowers. Thus easy credit made it very cheap for the government and other low-risk borrowers to obtain funds but did not penetrate into all categories of borrowers. One response to this problem, already noted, was the extension of government lending and guarantee operations, which did help break the barrier between high- and low-risk credit markets. By 1940 the FHA was insuring about $1 billion of new mortgages annually, and this certainly aided the recovery of residential construction somewhat.

Recession of 1937–1938. The gradual improvement in economic conditions received an unpleasant setback in 1937, when a short but painful recession intervened. The chief cause was Federal fiscal policy. President Roosevelt, eager to balance the budget, reduced Federal spending just at the time the unfortunate social security wage tax was going into effect. The combination shifted the government from a cash deficit of $3 billion in fiscal 1937 to a position of virtual balance the next year.

Government monetary policy also took some blame, although not well-deserved. In late 1936, Federal Reserve officials, alarmed at the huge volume of bank excess reserves and noting some upward movements in wholesale prices, used for the first time their power to raise reserve requirements. Although this increase was designed merely to limit further expansion and produced no tightening of bank credit, it was followed by a sharp drop in security prices and soon after by the downturn in the economy.

The recession convinced President Roosevelt that there was some relation between Federal fiscal policy and the state of the economy. From that time, deficit spending was practiced deliberately as a way of raising *GNP;* but the deficits were no larger than in the earlier 1930s.

SUMMARY AND GENERAL OBSERVATIONS

The first twenty-five years of the Federal Reserve could hardly be described as happy and successful. The difficulties stemmed in part from the original conception that the System would be a relatively passive agency helping to adjust the currency supply to the "needs of trade" by rediscounting and serving as lender of last resort in panics. The Reserve was given a weak administrative structure, and its powers over note issue and rediscount were hedged about by collateral and eligibility requirements.

The pattern of economic events during this time is shown by Figure 16-1. Soon after its formation, the Federal Reserve was turned into an engine of inflation to help finance World War I. In this it had little choice, and the real blame certainly lay with the Treasury and Congress for their undue willingness to use credit rather than taxation to finance the war. Less defensibly, the Reserve failed to tighten credit after the war, despite a continued serious and speculative inflation. Only a loss of gold induced it to contract credit, and it maintained high discount rates during the painful recession of 1920–1921. However, it continued to lend freely, and there was no monetary panic.

These experiences helped bring about an enlarged sense of the powers and responsibilities of the Reserve. Open-market policy was discovered, and the automatic guides to monetary policy furnished by the commercial-loan theory and the gold reserve were largely replaced by the concept of the Reserve banks as a continuous stabilizing force for business. The Reserve banks pursued this role with apparent success in 1922–1927, though the success was probably a reflection of the absence of serious tendencies toward instability.

The Federal Reserve proved incapable of halting the flood of credit into stock speculation, partly because its officials were (rightly) reluctant to tighten credit for the economy as a whole. However, the stock-market crash did not make inevitable the great decline of the economy after 1929. A more important factor was the inability of the System to prevent the collapse of the monetary and banking system which developed as the economy moved into depression in 1930–1933. Much of this inadequacy stemmed from the rigid rules tying rediscount and note issue to "eligible paper," the quantity of which decreased just when the need for more Federal Reserve credit was increasing. Still, Reserve leadership certainly lacked vigor in this period. The financial crisis which ended with the bank holiday of 1933 made the Depression much worse.

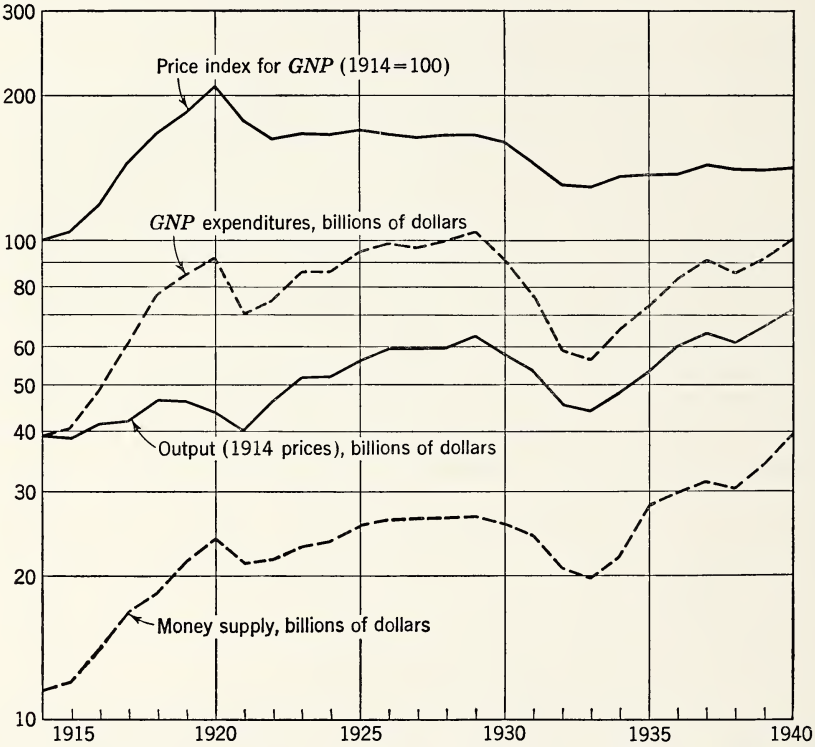

Fig. 16-1. Money, expenditures, output, and prices, 1914–1940. (*Monetary and Banking Statistics; All-Bank Statistics; U.S. Income and Output.*)

The Depression brought a vast program of financial reforms, beginning in 1932. These changes centralized control of the Federal Reserve, gave the Board power over reserve requirements and stock-market margins, and liberated note issue and rediscount from the restraints of the commercial-loan theory. Thus the structural approach was largely rejected, and the way opened for a free exercise of discretionary power.

In other areas, the government discarded the gold-coin standard and raised the price of gold; it resumed purchases of silver; it established a wide range of government lending and guarantee agencies, including insurance of bank deposits; and it extended regulation to many areas of securities and finance where weaknesses had been revealed in the 1920s.

For all its activity, the New Deal failed to get the country out of the Depression. Too many of its recovery measures were restrictionist, designed to raise prices but not to stimulate spending. The government did increase its expenditures but vitiated much of the benefit by raising taxes *pari passu.*

The money supply increased and interest rates fell as gold inflows enlarged bank reserves. But credit ease did not have much stimulating effect on expenditures, partly because banks were unwilling to lend to high-risk borrowers, partly because the demand for credit was not great.

As the experience of 1928–1933 discredited the automatic basis for monetary policy, the experience of 1933–1940 tended to discredit monetary policy itself as a recovery measure. Instead, with the help of Keynes, emphasis shifted to fiscal policy as the most powerful instrument available to raise *GNP,* but the rejection of monetary policy was perhaps extreme. One lesson of 1929–1933 which received inadequate attention was that it was important to prevent money itself from being an unstabilizing force. To accomplish this—to “neutralize” money—was an important responsibility for monetary policy. Another observation is that monetary policy was so weak after 1933 because the economy was unusually depressed. Therefore the period provided no evidence about what easy credit might do in a less serious recession when investment incentives and public opinion were not quite so devastated as after 1933.

The period 1914–1929 was one in which the banks relinquished the spotlight to other financial institutions. This was a period of great growth in life insurance, savings and loan associations, and investment companies. It also brought great attention, needless to add, to stock-market transactions, brokerage, and investment banking. Many financial firms were improperly conducted, although the Depression made them look worse than they were before 1929. Their deficiencies should not obscure their contribution to investment and economic growth in the 1920s, even though this helped generate the excess capacity which plagued the 1930s.

The Depression spread woe indiscriminately among financial institutions. The high rate of failures among commercial banks was matched by savings and loan associations and exceeded by investment companies, although life insurance companies held up better. The Depression accelerated the downward trend in the number of commercial banks, which began in 1920 and has continued ever since.

The lack of growth in the productive economy during the Depression was reflected in the assets of financial institutions. These increased in current value by only about 10 per cent between 1929 and 1939, with the increase coming almost entirely in life insurance. Securities markets and related business were in the doldrums throughout the 1930s.

The period of the New Deal was a watershed in the history of finance. It occasioned rejection of old concepts and dogmas and created a new institutional structure for money, banking, and finance. It very largely created the monetary system as we know it today. However, the period of the 1930s was so abnormal that it furnished little evidence of how the innovations would work or what the objectives of their manipulation should be.

QUESTIONS FOR STUDY

1. Despite the differences in structure, there is a remarkable parallel between the first fifteen years of both the Federal Reserve and the Second Bank of the United States. How did the institutions differ in structure? What similarities can you find in their behavior?

2. Many policy techniques which made important contributions to monetary reform were originally considered long before they were finally adopted, and they were adopted only after painful experiences which they might have helped avert. Show how this was true of bank-note taxation, deposit insurance, and control of stock-market margins.

3. Analyze the probable effects and evaluate the desirability of each of the following government policies used to deal with depression in the 1930s:
   - *a.* Increased tariff rates
   - *b.* Federal Reserve open-market purchases of government securities
   - *c.* Resumption of silver purchases
   - *d.* Direct Federal payments for relief of needy and unemployed
   - *e.* Increased tax rates
   - *f.* Suspension of antitrust laws (under NRA, 1933–1934)
   - *g.* Destruction of farm commodities
   - *h.* Increase in the dollar price of gold
   - *i.* Establishment of the first Federal minimum-wage law
   - *j.* Establishment and promotion of United States savings bonds (1935)

4. "Under the National Banking System the supply of money was too inelastic; during the first twenty years of Federal Reserve policy it was too elastic." Comment.

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CHAPTER 17

MONETARY AND BANKING DEVELOPMENTS IN THE UNITED STATES 1941–1958

WORLD WAR II

Fiscal and Debt Policies. As the years before 1940 were dominated by the problem of depression, the years following were dominated by inflation. Price increases associated with World War II continued through 1948 and were followed by a subsequent outburst attending the Korean conflict.

The American economy felt the impact of World War II even before the Japanese attacked Pearl Harbor in December, 1941. Rising defense orders from abroad and increased defense spending at home raised *GNP* one-fourth in 1941 and cut unemployment sharply. Once the war commenced, Federal expenditures expanded at a rapid rate, until near the end of the war in 1945 they were running at an annual rate of about $100 billion a year. An unprecedented portion of national output was devoted to war purposes—about 40 per cent for the war period as a whole.

During the period from July, 1941, through June, 1945, the Federal government spent an average of $76 billion a year. While it managed to finance nearly half of this expenditure by taxes—a record far superior to that of previous major wars—a large amount remained to be financed by borrowing. The national debt was enlarged by over $200 billion. Federal Reserve policy was utilized to enable these securities to be sold without subjecting the Treasury to heavy interest burdens. Indeed, interest rates were maintained at the extremely low levels to which they had fallen during the depressed 1930s. The interest cost of war issues averaged only about 2 per cent.

Federal Reserve assistance came in three forms. Reserve banks themselves purchased over $20 billion of securities. This action created additional reserves which helped the commercial banks purchase over $70 billion. The Federal Reserve also committed itself to supporting the prices of securities, so that nonbank investors had no reason to fear price declines below par and thus, presumably, were willing to buy more.

The Treasury sought aggressively to sell bonds to nonbank investors. Instead of encouraging sales by offering higher interest rates, the Treasury emphasis was on "fitting the security to the needs of the investor"—creating a variety of securities with special features to make them attractive to particular buyers at low interest.[1] The most important development was the wide use of United States savings bonds, which had first been introduced during the 1930s. These were (and are) nonmarketable securities issued in small denominations and redeemable on demand (after sixty days) at predetermined values. Those issued during the war had maturities of ten years and an interest rate of 2.9 per cent compounded to maturity, but much less if redeemed earlier. Business firms were not permitted to buy them, and individual purchases were limited to $5,000 a year. The bonds were well designed as savings assets, and ownership was very widespread. The Treasury also issued short-term securities designed for use by corporations to accumulate funds for tax payments.

The Treasury did issue a considerable volume of conventional marketable securities ranging from three-month bills to long-term bonds maturing after twenty years or more. A striking feature of the marketable issues was the pronounced "rate pattern" under which short-term bills carried a rate equivalent to only 0.375 per cent a year, while the bonds of longest maturity were issued at 2.5 per cent. Federal Reserve support ensured that each issue, whatever its maturity, would be highly liquid and that its price would not decline below par. Commercial banks were forbidden to buy bonds with more than ten years remaining until maturity, and thus bank purchases were diverted into the shorter maturities. Other investors had little incentive to hold the low-yield short-term issues, since longer-term ones were just as liquid and paid much better. The Treasury insisted on issuing three-month bills, with the inevitable result that most of them gravitated into the Federal Reserve. By the end of 1945, $13 billion of the outstanding $17 billion of three-month bills was held by Reserve banks.

The general tendency of wartime debt management was to make all United States securities highly liquid, chiefly through the support of the Federal Reserve. Treasury officials reasoned that the assurance of liquidity would do more to promote bond sales than would higher interest rates; and they could not offer both incentives, since higher rates on new issues would have reduced prices of the older marketable issues.

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[1] Henry Murphy, *The National Debt in War and Transition,* McGraw-Hill Book Company, Inc., New York, 1950.

The increase in the national debt, expressed in billions of dollars, is shown by the following table:[2]

End of year	Total debt	Portion owned by			
		Federal Reserve	Commercial banks	Others	
				Saving bonds	Others
1940	$ 39	$ 2	$17	$ 3	$17
1945	256	24	91	43	98
Increase...	$217	$22	$74	$40	$81

Certainly the campaign to sell securities to nonbank buyers met considerable success. Savings-bond drives were conducted with all the resources of modern advertising, and it was estimated that about one hundred million Americans bought savings bonds at one time or another during the war. But the sales to nonbank buyers were large in part because of the large sales of securities to banks! These sales created a great amount of money, part of which the Treasury was then able to borrow back. By the end of the war the public had increased its money supply by $60 billion and had added $120 billion of highly liquid government securities to its holdings.

Money and Monetary Policy. The Federal Reserve was torn between the objectives of aiding Treasury finance through easy credit and trying to curb inflationary pressure. In addition to buying $22 billion of securities, it maintained low discount rates, although the volume of rediscounting remained low during most of the war. Reserve requirements were held at the maximum levels outside the central reserve city group, which was subjected to only 20 per cent instead of the maximum 26 per cent. Margin requirements on stock-market loans were kept at 50 per cent until 1945, as the market was relatively quiescent.

The chief innovation in Reserve policy was the imposition of direct control over consumer credit, beginning with Regulation W in 1941 under authority of an Executive order of the President. Under this credit control program the Board established minimum down payments and maximum maturities for various types of purchases. As in margin control, this regulation placed the Federal Reserve in direct authority over nonbank firms, both financial and nonfinancial. Consumer-credit control probably exerted some counterinflationary influence, but the shortages of durable goods were a more important reason for the substantial reduction in installment debt which occurred during the war.

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[2] Total debt excludes holdings of Federal agencies and trust funds. *Federal Reserve Bulletin,* June, 1943; June, 1948.

The Federal Reserve also used whatever powers of persuasion it could muster to encourage banks to limit their private lending activities, particularly to curtail "nonproductive" loans (for example, those for accumulating large inventories). Such influence may have helped produce the relative stability shown by commercial bank loans in 1941–1944. However, reduced needs for such loans were more important. Firms producing for war got their credit from the government, while others soon had ample funds from rising incomes.

The effects of war finance on the money supply were strikingly simple. Commercial bank and Federal Reserve holdings of United States securities increased about $100 billion, while other monetary assets showed little change. Nonmonetary liabilities and capital rose about $40 billion, leaving a $60 billion increase in the money supply. By 1945 the public's money supply was 2½ times that of 1940.

Table 17-1

Money, Velocity, and GNP Expenditures, 1941–1945

(Billions of dollars)

Year	M*	V_g	*GNP*	Consumption	*C/PDI*, per cent	Domestic investment	Government purchases		Net exports
							Federal	State and local	
1941	$ 46	2.66	$126	$ 82	88	$18	$17	$8	$1
1942	57	2.82	159	90	76	10	52	8	†
1943	84	2.29	193	101	75	6	81	7	−2
1944	102	2.08	211	110	75	7	89	8	−2
1945	118	1.82	214	122	81	10	75	8	−1

* Money supply for 1941 is for June; others are annual averages. All include Treasury deposits.

† Less than $0.5 billion.

SOURCES: *Federal Reserve Bulletin; U.S. Income and Output.* Money and velocity are computed by the author.

The commercial banks entered the war with enormous excess reserves—over $6 billion—which provided most of the lending power they needed during the war. However, the demand for coin and currency rose by an abnormally large amount—$17 billion—which would have stripped the banks of reserves had it not been for the large Federal Reserve purchases of securities.

GNP Expenditures. Table 17-1 shows the relation between the money supply, fiscal policy, and *GNP* expenditures during the war. The increase in the money supply was greater than the increase in *GNP;*

hence velocity fell substantially. This drop was a reflection of the increased holdings of idle cash in the face of low interest rates, shortages, and rationing of goods. If we exclude the Treasury balance, the money supply in 1945 was about $101 billion, which would give a velocity ratio of only 2.12.

The great rise of *GNP* during the war can be explained entirely in terms of fiscal policy. Although consumer spending increased by $40 billion, the rise was an induced response to higher incomes. Actually, consumption rose much less than its normal ratio to income would have indicated. Domestic and foreign investment declined, while state and local government expenditures remained constant. The rise in Federal expenditures was directly responsible for more than half the rise of *GNP* spending and created the higher incomes which raised consumption. Easy credit and the swollen money supply had no apparent expansionary influence in their own right, in view of the behavior of investment and the propensity to consume.

Output and Prices. Table 17-2 relates these increases in *GNP* expenditure to the behavior of output and prices during the war.

Table 17-2
GNP, Output, and Prices, 1941–1945

(Dollar figures in billions)

Year	*GNP*	*Output* (1941 *prices*)	*Prices* (1941 = 100)	*Unemployment, per cent*
1941	$126	$126	100	9.9
1942	159	141	113	4.7
1943	193	157	123	1.9
1944	211	168	126	1.2
1945	214	166	129	1.9

SOURCE: *Economic Report of the President.* Conversion to 1941 base is by the author.

The large extent of unemployment at the beginning of the war made it possible for output to increase greatly in response to rising *GNP* expenditures. This performance was in contrast to that of World War I and provided an impressive demonstration of the capacity of fiscal policy to raise output and employment. By 1943, however, full employment had been reached, and output did not rise much thereafter.

As *GNP* expenditures rose rapidly and unemployment declined, prices began to move upward. Consumer prices rose about 20 per cent in 1941–1942, which restored them to their 1929 level. To check the inflation, the government sharply increased taxes, so that its deficits actually grew smaller after 1943. Also, an extensive program of direct economic controls was established.

Direct controls were imposed on prices in 1942, and their scope and administration were extended as the war progressed. Wage rates were brought under regulation, and allocation of some critical materials was subjected to administrative decree. As a result, an effective lid was imposed on the cumulative upsurge of prices and costs, and between early 1943 and early 1946, consumer prices rose only about 10 per cent. However, the decline in the value of money was more severe than the price statistics indicate. Some products became totally unavailable (automobiles and many appliances were not produced at all). Other items deteriorated in quality or were available in quantities less than purchasers desired at existing prices. Thus the official price figures understate the degree of inflation, since a free market was not functioning.

However, direct controls undoubtedly worked to keep private spending from rising even more. Individuals and firms were restrained from indulging in scare buying or speculative hoarding. Scarce resources were shifted into government uses by direct pressure and without undue increases in procurement costs. Direct controls helped to sustain the "money illusion," so that people responded to monetary incentives to produce even though the money they received could not be spent immediately.

Thus war finance greatly increased incomes and the money supply, while direct controls prevented the increased spending which normally would have followed. The inevitable consequence was that cash and liquid assets accumulated in people's hands to an unprecedented degree and set the stage for postwar inflation. On the whole, direct controls were successful, with the help of a public opinion influenced by experience with deflation rather than inflation and by wartime patriotism. Nevertheless, controls merely postponed inflation rather than eliminated its underlying causes.

Appraisal of War Finance. In view of the fact that consumer prices rose about one-fourth during the war and by an additional one-third in the three years afterward, were wartime financial policies unduly inflationary?

Since the root of inflation was Federal deficit spending, higher taxes would presumably have meant less inflation. Because tax policy was much more vigorous than in previous wars, however, at some point higher taxes would have had adverse effects on work incentives. Possibly a Federal sales tax could have been imposed without such effects, but public opinion generally did not support it. On the whole, wartime tax policy does not merit severe criticism.

What about monetary and public-debt policies? It is clear that monetary policy as such had no independent existence during the war. The

Federal Reserve had no choice but to subordinate its powers to the financial decisions made by the administration and Congress.

If there was a defective element in financial policy, it must have been public-debt management. In retrospect, the decision to maintain during the war a pattern of interest rates appropriate to deep depression seems very unwise. Higher interest rates would not have led to reduced private spending but would probably have led the public to hold more securities and less cash, thus reducing the increase in the money supply which resulted from bank purchases and keeping excess liquidity from growing so much. However, the Treasury was to some degree trapped. There was no good reason to pay high rates early in the war, but once they issued low-interest securities, Treasury officials were reluctant to let rates rise because the earlier issues would fall in price. If investors began to expect rate increases (and falling bond prices), they might become less, not more, willing to buy. The problem was how to achieve the advantages of high rates without the disadvantages of rising rates! These objectives could have been reconciled to some degree by paying higher rates on short-term issues than were offered and by raising the rate on savings bonds.

But what was the point of going through the motions of borrowing, anyway? In particular, why should the government have paid so much interest to the banks for creating money, when the Treasury could do that for itself? Even borrowing from the nonbank public was done to a large degree by giving them securities virtually as liquid as cash—savings bonds might almost be considered interest-bearing money. Why not just issue greenbacks and save the interest costs?

There was certainly an element of naïveté in Treasury borrowing. However, some unconventional justifications can be made for it. First, interest paid to the banks helped compensate them for the work involved in managing the country's money supply at a time when income from private lending was low. Second, the public did not, in fact, regard savings bonds as interest-bearing money but held on to them. There was no mad rush to cash them in after the war. Besides reducing the public's liquidity, issuing interest-bearing assets instead of more cash might be defended as a slight compensation for the loss in real value of fixed-dollar assets resulting from price inflation.

No doubt wartime financial policies could have been improved. Whether the results would have been worth the costs and possible interference with productive incentives, no one knows. The war was successfully prosecuted, and the injustices resulting from financial policy were small relative to the tragedies which war itself brings. The postwar inflation, while unpleasant in some ways, did help achieve reconversion without depression.

INFLATION AND COLD WAR, 1945–1951

The Employment Act of 1946. Many people in and out of government were impressed by the rapidity with which the economy was restored to full employment by wartime finance, but they feared that prosperity would not automatically sustain itself when the economy returned to peace. This view drew support from past experience and also from the predictions of economic forecasters. Using data on the prewar behavior of consumption and investment, many forecasters drew the gloomy conclusion that investment could not absorb all the saving people would try to do at full-employment income levels, so that renewed stagnation might result. However, the spread of Keynesian ideas and the wartime experience with fiscal policy appeared to furnish an answer.

As the end of the war approached, strong pressure was brought on Congress to commit the government to a policy of maintaining full employment through fiscal policy. After a lengthy tussle, a compromise was enacted in the Employment Act of 1946, a landmark in the attitude of government toward the economy. The law was chiefly a declaration of good intentions; it pledged the government "to use all practicable means consistent with its needs and obligations . . . to promote maximum employment, production, and purchasing power." Some congressmen had wanted a much stronger law, under which taxes and government expenditures would have been determined annually in accordance with forecasts of levels needed to ensure full employment. In the light of subsequent experience with such forecasts, the more moderate approach finally adopted was probably preferable. But the law did not involve any specific policy directives, and the objectives were stated in very vague terms. What was meant by "*maximum* employment, production, and purchasing power"? Some detected an inflationary bias in its terms, but in practice the law has been interpreted as providing a mandate for avoiding both depression and inflation.

The Employment Act of 1946 required the President to submit to Congress each January a report on the conditions and prospects of the economy, with recommendations for policy actions. The law established a three-man Council of Economic Advisors to assist in preparing this report, and it set up a joint committee of both houses of Congress to receive the report and make further economic investigations and recommendations—what is now the Joint Economic Committee.

The Postwar Inflation, 1945–1948. The alarm about postwar depression proved unwarranted. With the end of the war in 1945, private spending began to increase. Most wartime controls were removed by 1946, and consumer prices, which had held fairly stable, now rose rapidly. By 1948 they were about one-third above 1945 and 70 per cent above

1940. The behavior of *GNP* expenditures and their relation to output and prices is shown by Table 17-3.

Table 17-3
Spending, Output, and Prices, 1945–1948
(Billions of dollars)

Year	*GNP*	Consumption	*C/PDI*, per cent	Investment	Government purchases		Net exports	Output (1947 prices)	Prices (1947 = 100)
					Federal	State and local			
1945	$214	$122	80.9	$10	$75	$ 8	$ −1	$261	82
1946	211	147	91.6	28	21	10	5	234	90
1947	234	165	97.2	32	16	13	9	234	100
1948	259	178	94.2	43	19	15	4	243	107

SOURCE: *U.S. Income and Output.* Conversion to 1947 base is by the author.

Federal fiscal policy shifted from being an inflationary to a counterinflationary force. Federal purchases dropped a cool $50 billion in 1946, and the government shifted from a cash deficit of $37 billion in 1945 to a balanced position in 1946. Taxes were reduced somewhat, but revenues stayed high, and Federal cash surpluses totaled nearly $14 billion in 1947–1948 combined.

The decline in Federal purchases was large enough to reduce total *GNP* spending in 1946, but private spending rose rapidly and soon reversed this decline. The biggest contributor to the rise was consumption spending. Some of the higher consumption was induced by rising incomes, but most of it reflected a return of the propensity to consume to more normal levels (and above, in 1947). Consumer credit expanded over $8 billion in 1946–1948.

Business investment, which had been abnormally low ever since 1929, rose to record levels, even after price increases were allowed for. The war had depleted productive capacity, while the demand for most products now appeared insatiable. State and local government purchases, virtually unchanged for fifteen years, now rose rapidly. Net exports were also abnormally high in response to large loans to foreigners for relief and reconstruction.

The great rise in spending coming at a time when resources were fully employed could not elicit much more output—indeed, the data show that production in 1946–1948 was below the 1945 peak. The index of industrial production, which stood at 123 in 1945, ranged between 86 and 104 for 1946–1948. Actually, the economy had been at "hyperfull" employment during the war. Since some people who had been in the labor force or military service preferred to return to housework or school when the war ended, the total labor force (including military) dropped by 4 million in 1946. Average weekly hours worked declined from 45 in 1944 to 40 in 1946.

Although total output and input declined, at least the economy was now turning out products people wanted. Real consumption per capita in 1946–1948 was about 40 per cent above 1929 levels. And despite the demobilization of 8 million servicemen in 1945–1946, unemployment never exceeded 4 per cent of the labor force.

The increase in *GNP* spending which occurred in 1947 and 1948 served almost entirely to raise prices. Granting the desirability of high output and employment, it might have been possible to curb the inflation without reducing appreciably the level of economic welfare achieved.

Monetary Policy, 1946–1948. Despite the inflationary upsurge of prices, the Federal Reserve remained chained to the support of bond prices—or, as they repeatedly phrased it, to "maintaining orderly conditions" in the bond market. Aggressive initiative for this objective came from the administration, and particularly the Treasury. The administration wanted stable bond prices and low interest rates to keep down the costs of the national debt, which exceeded $250 billion and included about $100 billion of securities either maturing or redeemable in the near future. Although the Treasury was not a net borrower, it wanted to avoid higher rates on refunding issues. Furthermore, Treasury spokesmen argued, falling bond prices might impair the solvency of financial institutions which held large amounts, would be unfair to other investors who bought in expectation of stable prices, and would impair "confidence" and undermine the government's "credit."

There was a more sophisticated economic defense of low interest levels: they would promote a high level of investment which would help fill the deficiencies of productive capacity left by depression and war. Furthermore, despite the inflation, there was the lingering fear that serious depression would loom soon and that credit restriction might bring it on.[3]

The Federal Reserve Board sympathized with these objectives. Marriner Eccles, the Chairman of the Board, expressed the conviction that restoration of an uncontrolled bond market would confront the Treasury with "an impossible debt-management problem." He argued that "it could not tell from day to day on what terms it could do its refunding or sell new securities. It would be entirely at the mercy of uncontrolled factors in the market, if, indeed, conditions did not become so confused and chaotic as to demoralize completely its refunding operations." The Board felt responsible for ensuring that individual Treasury refunding operations would not fail.[4]

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[3] The early economic reports of the President condemned price inflation chiefly because of the fear that prices would get so high that people would not buy current output, and a depression would result! See *Economic Report of the President*, January, 1947, p. 19.

Reserve officials objected bitterly to the terms which the Treasury insisted on, particularly the rates on short-term securities. By a gradual process and against much Treasury opposition, they managed to reassert their point of view. In 1946, the preferential rate of 0.5 per cent for discounts on collateral of United States securities was discontinued. In 1947, support was withdrawn from short-term securities, and rates rose from the artificial wartime levels to slightly over 1 per cent.

Nevertheless, the basic principle was maintained; that is, long-term securities should not fall below par, nor rates rise above 2½ per cent. In January, 1948, President Truman's economic report reasserted this rule as a matter of faith.[5]

What were the actual effects of the support program? Federal Reserve holdings of government securities did not rise above their 1945 peak and actually diminished during much of 1947, though a sharp rise followed. Interest rates on the long-term bonds remained below the 2½ per cent support level during 1946–1947. Yet credit expanded rapidly in 1946–1948. Commercial bank loans rose from $26 billion at the end of 1945 to $43 billion at the end of 1948.

Three factors enabled the banks to carry out this great expansion. First, the banks emerged from the war with over $1 billion of excess reserves. Second, the gold stock increased by $4 billion in 1946–1948. Third, Treasury debt retirement provided the banks with the funds to expand loans. As we noted, the Treasury in 1947–1948 took in over $13 billion in surplus revenue which it used for debt retirement. Furthermore, at the end of the war the Treasury bank account was swollen to over $25 billion with the proceeds of the last loan drive. Much of this was used for subsequent debt retirement.

In its retirement policy, the Treasury followed the economists' rule that retiring Reserve-held debt is the best policy to combat inflation.

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[4] Marriner Eccles, *Beckoning Frontiers,* Alfred A. Knopf, Inc., New York, 1951, pp. 420–421, 480.

[5] "No bonds, however, have been permitted to fall below par and it is the declared purpose to continue active support of Government bonds for the purpose of maintaining an orderly and stable market at a low level of long-term interest rates. . . . The financial world should rest easy that the investment market will not be subjected to the demoralization which swept over it in 1920 when the unsupported market for Government bonds fell about 20 per cent below par." *Economic Report of the President, January,* 1948, pp. 85–86.

Some $10 billion worth of Reserve-held securities were retired; but as fast as these retirements drew reserves out of commercial banks, the banks merely sold more securities to the Federal Reserve. Thus the funds withdrawn through tax surpluses returned to active circulation through bank loans. The bond-support policy greatly reduced the counterinflationary influence of the tax surpluses.

In recognition of the weakness imposed by the support program, Reserve officials sought methods by which private credit could be restrained without raising interest rates on government securities. They retained consumer-credit controls until November, 1947, when a congressional resolution forced discontinuance. Controls prevented the loosening of credit terms but did not prevent a rapid rise in credit volume. Margin requirements on stock-market lending were raised during 1945 and were held at 100 per cent during 1946. In February, 1947, they were cut to 75 per cent, where they remained until 1949. Under high margin requirements, stock-market credit fell substantially in 1946 and remained low throughout the rest of this inflationary period. However, banks may simply have enlarged other lending more.

Reserve officials also urged Congress to strengthen other controls over private lending. Among their recommendations were the novel suggestions that a required reserve of government securities be added to existing reserve requirements and that reserve requirements be extended to nonmember banks. In the summer of 1948, President Truman, as an opening gun in his campaign for reelection, called a special session of Congress to deal with inflation. The chief results were the reestablishment of temporary Reserve authority over consumer credit and a temporary authorization to increase reserve requirements above the levels in the existing law. In August, 1948, Regulation W was reimposed, and credit expansion did slow down. Reserve requirements, which had remained unchanged since 1942 at the levels of 20-20-14 per cent for demand deposits, were increased in 1948 to 26-22-16 per cent for demand and from 6 to 7½ per cent for time deposits. These increases brought a heavy wave of securities sales by the banks to the Federal Reserve. The long-term interest rate rose to the 2½ per cent ceiling, but no further.

The behavior of money and credit during the inflation is summarized in Table 17-4. The critical role of Treasury funds is apparent here. The public's money supply increased by $11 billion from 1945 to 1947 through the reduction in the Treasury balance. (If the money supply is defined to include the Treasury balance, then the shift becomes a rise in velocity instead). In 1948, however, the money supply did not grow further; instead, velocity increased. Commercial banks and other financial institutions sold United States securities, on balance, to other in-

Table 17-4
Money, Velocity, and Interest, 1945–1948
(Dollar figures in billions)

Year	M (excl. Treasury)	M (incl. Treasury)	V_g	GNP	Interest rates, per cent	
					Corporate Aaa	Bank
1945	$101	$118	1.8	$214	2.62	2.2
1946	108	124	1.7	211	2.53	2.1
1947	112	115	2.0	234	2.61	2.1
1948	112	116	2.2	259	2.82	2.5

SOURCES: Money-supply data are annual averages computed from *Federal Reserve Bulletin;* all exclude idle Treasury gold. Other data are from *Economic Report of the President,* 1959. Velocity is calculated by the author from data including Treasury deposits.

vestors or received the proceeds of Treasury debt retirement and expanded their lending operations. The measures of 1948 clearly imposed some credit restraint. Both long-term bond and short-term bank interest rates rose appreciably, and the volume of borrowing fell below that of 1947. But prices had stopped rising in the late summer of 1948, before the added restraining measures went into effect. The supply of goods was catching up with demand as the capital-expenditure programs began to bear fruit.

Appraisal. The bond-support program placed the Federal Reserve in a passive position where it had to supply whatever amount of credit the market demanded at the pegged level of interest rates. There was usually no need to expand Federal Reserve credit to maintain the 2½ per cent rate, in view of Treasury debt retirements, gold inflows, and previous bank excess reserves. However, the bond-support responsibility made it impossible for the Reserve to take any important steps to restrict private credit expansion during the inflation. This was clearly demonstrated in 1948, when increased reserve requirements led to mass securities sales to the Reserve banks.

There was much difference of opinion about the merits of the bond-support program. In January, 1949, President Truman's economic report lauded it as "a most significant element in the smooth reconversion from a wartime economy to a civilian peacetime economy. It contributes to the underlying strength of the financial structure of the country. It engenders business confidence. It has made it easier for business and industry to obtain the capital funds necessary for their reconversion and expansion projects."[6] By contrast, Professor Chandler concluded that easy money was "an important contributory factor" to inflation, that "a rise of interest rates and the accompanying uncertainty as to the future course of rates should have occurred sooner and should have been allowed to progress further," and that such restraint need not have interfered with prosperity.[7]

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[6] *Ibid.,* 1949, p. 11.

Subsequent experience with credit restraint gives us some idea of what might have been accomplished. First, credit restraint definitely would have reduced the volume of spending on credit, although not enough to prevent inflation without serious disruption of the bond market. Second, higher interest rates would have encouraged the release of idle funds that had been hoarded and thereby increased the velocity of money, though not enough to offset the first effect either. Preventing the money supply from rising would have helped the economy work off the excess liquidity acquired during the war. Third, moderate credit restraint would not have impeded reconversion, interfered with full employment, or created insuperable problems of debt management. Fourth, moderate restraint would have increased the effectiveness of monetary policy during the subsequent recession and during the inflationary outburst of 1950–1951.

The Recession of 1949. By the end of 1948, the rise of prices had stopped, and the economy had entered a mild recession. Industrial production and employment fell off toward the end of the year.

The chief Federal action to deal with the recession was inadvertant. President Truman, to his great credit, staunchly resisted congressional desires to cut taxes during the postwar inflation and vetoed two tax-cut bills in 1947. In April, 1948, Congress succeeded in passing a reduction over his veto. At the time, the President's action was completely correct, for he feared possible inflationary consequences; but Congress later turned out to be right—for the wrong reasons. The tax reduction went into effect just in time to provide a cushion against declining private disposable incomes.

In 1949, *GNP* expenditures fell off $1.3 billion, but this figure masked a big drop in inventory investment counterbalanced by a large rise in government expenditures. Because of tax cuts and higher transfer payments, personal disposable income fell only half a billion, and consumer spending actually rose. The latter increase was encouraged by price reductions in food and clothing and by easing of credit as Regulation W lapsed.

The Federal Reserve relaxed other restraints. Margin requirements were lowered to 50 per cent, and after mid-1949 stock prices and credit both moved strongly upward. Reserve requirements on demand deposits were cut 4 per cent for all banks. This cut, plus the reduced private demand for loans, caused interest rates to fall and bond prices to rise. The Federal Reserve took the opportunity to reduce its security holdings by over $4 billion. Keeping bond prices down was also part of "maintaining orderly conditions." However, interest rates did decline somewhat. The policy followed seems to have been appropriate. Underlying demand for goods, particularly capital goods and consumer durables, was strong, and business conditions improved after mid-1949.

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[7] Lester V. Chandler, *Inflation in the United States, 1940–1948,* Harper & Brothers, New York, 1951, pp. 392–393.

The Korean Inflation. In June, 1950, North Korean troops invaded South Korea, and President Truman dispatched American forces in a "police action" to halt the aggression. The news brought visions of a return to wartime economic conditions. Consumers, fearing rationing and shortages, rushed to buy. Business firms hurried to accumulate inventories. Although Federal defense spending increased slowly, a rapid expansion in defense contracts encouraged a rise in business investment. As a result, *GNP* expenditures rose rapidly. Their behavior and composition are shown in Table 17-5.

Table 17-5
GNP Expenditures, Prices, and Output, 1949–1952
(Dollar figures in billions)

Year	*GNP*	*Consumption*	*C/PDI, per cent*	*Domestic investment*	*Government purchases*	*Net exports*	*Output* (1954 *prices*)	*Prices* (1954 = 100)
1949	$258	$181	95.5	$33	$40	$4	$293	88
1950								
1st ½	270	188	94.1	43	37	2	307	88
2d ½	299	202	94.9	56	41	*	329	91
1951								
1st ½	322	209	94.1	59	54	1	337	96
2d ½	336	211	90.9	54	67	4	347	97
1952	347	220	92.1	50	76	1	354	98

* Less than $0.5 billion.

SOURCES: *U.S. Income and Output; Economic Report of the President,* 1953. Data for 1950 and 1951 are seasonally adjusted annual rates.

The great upsurge in spending was concentrated in the twelve-month period following the outbreak of hostilities. During the rest of 1950, private spending provided the force, while in the first half of 1951 government spending predominated. Scare buying shows clearly in the rise in the propensity to consume in late 1950, followed by its drop. Business investment shot up in late 1950 but increased very little subsequently.

The rise in spending raised both output and prices. Between 1949 and 1952, prices went up slightly over 10 per cent, while output increased by 20 per cent. The rise of output helped support a big rise in defense spending without the need for substantial reduction in private use of goods and services. Nevertheless, the economy sustained another unpleasant inflation, though it was short in duration.

The chief reason inflation was not more serious was Federal fiscal policy. As soon as increased expenditures were in prospect, President Truman recommended and Congress enacted substantial tax increases. As a result, the government had slight cash surpluses in 1950 and 1951 and a deficit of only $1.6 billion in 1952. In 1952 and 1953 combined, Federal defense spending took over 13 per cent of *GNP*, almost as much as during World War I, without appreciable further inflation. This amazing record has not received the commendation it deserves.

Fiscal policy was assisted by the reimposition of direct economic controls. Under the Defense Production Act of September, 1950, a system of allocating scarce materials was set up, and in January, 1951, price controls were imposed. Some observers felt the government could have moved faster to put controls into effect and criticized the fact that controls were not as stringent as those of World War II. Consumer rationing was not used.

The great weak spot during the inflationary upsurge of 1950 was monetary policy. Private scare buying raised the demand for private credit and brought extensive sales of government securities by lenders. The Federal Reserve was obliged to purchase on a large scale to maintain the support program; its holdings increased by $3 billion between the end of May and the end of the year. In the same period commercial bank loans increased from $44 billion to $52 billion, while their holdings of United States securities dropped $4 billion. The public's money supply in December, 1950, was $6 billion higher than in the previous December.

Reserve officials did not regard these moves with equanimity but took what steps they could without abandoning support. Reserve requirements and discount rates were raised. Under the authority of the Defense Production Act, controls were again imposed on consumer credit and, for the first time, on housing credit. These regulations took the familiar form of specifying minimum down payments and maximum maturities. Margin requirements were raised to 75 per cent.

These measures, plus the rapid rise in demand for loans, did produce some tendency toward higher interest rates, but not enough to curb the inflationary surge appreciably. Reserve officials manifested increasing dissatisfaction with their obligations under the support program. They allowed some short-term securities to fall below par. Although they did not want a radical change, they tried to induce the Treasury to agree to somewhat higher interest rates. But the administration announced that the existing rate pattern would be maintained and claimed that Reserve officials had agreed to support it. When the Reserve officials denied this, the controversy was brought into the open. Having failed to achieve the moderate compromise they sought, Reserve leaders now demanded more freedom of action. In the famous "accord" of March, 1951, they got it.

Under this agreement, Reserve officials renounced any rigid commitment to support bond prices at par, although they would continue to maintain "orderly conditions" by preventing large fluctuations. The Treasury agreed to give attention in its debt-management operations to the views of the Reserve Board, and also agreed to issue a 2¾ per cent bond. In return, Reserve officials agreed to hold discount rates at their existing level of 1¾ per cent for another year.

The abandonment of the support program was overdue. Whatever defense could be made for it in the period 1946–1948, it was indefensible in 1950. Although a Reserve refusal to expand bank reserves would have been offset in part by rising velocity, there is little doubt that the inflation would have been less drastic had effective credit restraint been imposed.

MONETARY POLICY, 1951–1958

The Setting. The performance of the economy immediately after the accord was generally good. The rise in prices slowed to insignificance, while output expanded and employment was high. Cessation of hostilities in 1953 reduced defense spending, and the cut set off a mild economic recession. Strong recovery began in 1954. The economy remained prosperous until mid-1957, when another mild recession began; this slight downturn ended in 1958. The prosperity in 1956–1957 was marred by a renewal of price increases and by the somewhat disappointing behavior of output and employment.

Politically, the period was notable for the first Republican administration since the Depression and since the passage of the Employment Act. The Democrats, who had been campaigning against Herbert Hoover for thirty years, waited anxiously to see if he had really returned. In his campaign, General Eisenhower criticized the Truman administration for undue tolerance of inflation and promised to give a greater role to monetary restraint and an independent Federal Reserve.

The new administration promised that Treasury debt management would be determined in accordance with credit policy. Wartime direct controls were largely scrapped early in 1953, and credit restraint appeared appropriate. Therefore, in April, 1953, a refunding bond issue carrying the unheard-of rate of 3¼ per cent was issued, to the consternation of many observers. Democrats began complaining about undue benefits for bankers, and some economists criticized the tightness of private credit which resulted. Subsequent events proved that the administration was prepared to tolerate, and the Federal Reserve to exercise, a degree of independence in the direction of stringency which made the events of 1953 look very trivial in comparison.

The recession of 1953–1954 removed doubts as to the Republican acceptance of the principles of the Employment Act. Substantial tax reductions went into effect (mostly through the expiration of prior legislation for temporary increases), and deficits were accepted with equanimity as appropriate to recession. The administration also attributed substantial stabilizing influence to the more flexible credit policy.

Federal Reserve Policies. The accord of 1951 marked the beginning of the first real trial of Federal Reserve policy under the augmented powers of the 1930s and the new objectives reflected in the Employment Act. On the whole, Reserve policies after 1951 were conducted "by the book"—toward countercyclical variation of monetary and credit conditions. Aside from some possible errors in timing, there was little criticism about the direction of policy, but a great deal of criticism was directed at the steady rise of interest rates which accompanied it.

Instead of using a year-by-year approach, let us look at the general pattern of Reserve strategy, which can be observed in Figure 17-1. First we shall review individual policy instruments and then turn to a general appraisal.

1. *Open-market operations.* The most important effect of the accord was to liberate open-market operations. During 1951–1952, securities were purchased to curb drops in bond prices in the interests of an "orderly market," but in 1953 the System's commitment to managing the public debt was reduced to "correcting a disorderly situation," a directive which in practice meant considerably less concern with bond prices or Treasury financing. At the same time, the Open-Market Committee adopted a so-called "bills only" policy by which they agreed to confine their open-market operations to three-month bills, whose price fluctuation is insignificant. Reserve influence on long-term bond prices would be only indirect, arising from changes in general credit conditions. The merits of these points of view, which remained effective through 1958, will be examined later.

Securities were sold early in 1953 and then purchased again when the recession set in later that year. However, in 1954 Reserve holdings were allowed to decline, as bank reserve requirements were cut. During the economic upsurge of 1955–1957, Reserve holdings were reduced slightly further, so that strong restraint was exerted. Once the recession set in in 1957, some securities purchases were made, and these were stepped up in 1958 to replace reserves lost by gold outflow.

Besides the countercyclical function of open-market policy, it was the chief means of adjusting bank reserves to seasonal variations in demand for currency and credit. Reserve bank holdings of securities, which averaged about $25 billion in 1951–1958, showed an average variation of about $2 billion between the seasonal low in February and the high in December. Variations attributable to seasonal factors were greater than those made for cyclical reasons.

2. *Rediscount policy.* During the years 1934–1950, the volume of rediscounting was insignificant. When banks needed reserves, they sold securities. Federal Reserve support prevented the prices from falling, and if banks generally were selling, more reserves would be created. Removal of support changed this condition. Sales by banks were at times allowed to depress prices in the hope that prospective capital losses would deter further sales. If sales were made, they did not bring forth additional reserves unless Federal Reserve officials decided that conditions warranted the increase. In consequence, member banks again turned to rediscounting as a major method of adjusting reserve positions.

The increase in discount volume came with the accord, and by the end of 1952 discounts had gone above $1.5 billion. Discount-rate policy was still passive: the New York rate had been 1½ per cent in the depressed months early in 1950; it remained at 1¾ per cent during the inflationary surge of 1950–1951 and went only to 2 per cent in 1953. Subsequently, however, discount-rate changes became more frequent and vigorous. This increased activity was apparent in 1955–1957, when rates were steadily moved up until they reached 3½ per cent in 1957, the highest level since the 1920s. Substantial reductions were made during the recession of 1957–1958, but rates moved up again in late 1958 when recovery was apparent.

Despite the vigorous countercyclical movement of discount *rates*, the movement of discount *volume* was procyclical. Thus discounting was very low in 1954, when the rate was 1½ per cent, but hovered around $1 billion in 1955–1957 at rates of 2½ to 3½ per cent. These data do not prove that high rates cause a high volume of discounting, since a comparison with 1952 suggests the volume might have been higher if rates had not been raised. What happened was that reduction in bank reserves through open-market policy was offset in part by increased rediscounting. This was in accordance with the Reserve theory that the banks would struggle to get out of debt and would not expand credit so much if their reserves came from rediscounting.

3. *Reserve requirements.* Prior to 1951, when open-market policy was hamstrung by the support program and discount policy was insignificant,

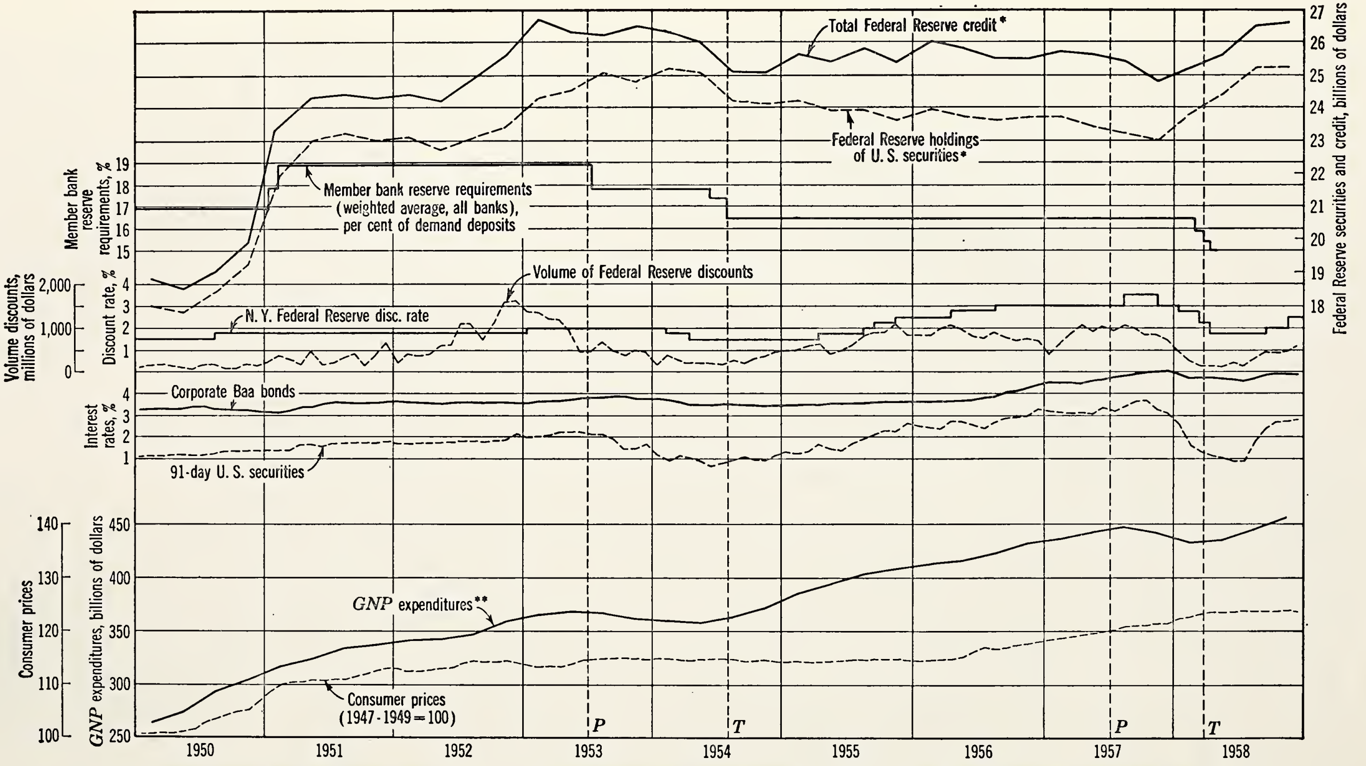
the Federal Reserve made much use of reserve-requirement changes. Revival of the first two instruments of Reserve policy was accompanied by a change in the use of the third. From the high levels attained in 1951–1953, reserve requirements were reduced during each recession, but at no time were they increased. This behavior is easy to understand. Reducing the requirements in recession permitted all the member banks to expand more or less proportionally, and thus such action seemed fair. As a means of tightening credit, increasing the requirements seemed too crude and massive a technique. Furthermore, there were good reasons for the Federal Reserve Board to prefer permanently lower requirements. In general, reducing reserve requirements appeased the member banks, and in particular it reduced their competitive disadvantage relative to nonmember banks.

Besides the changes in the level of requirements, there was a narrowing of the spread in requirements between central reserve and reserve city banks. This culminated in a statutory change in 1959 which permitted the distinction to be abolished entirely, so that only two reserve categories would remain.

4. *Selective controls.* Restoration of the vigor of general credit controls was accompanied by decreased emphasis on selective controls. The controls on consumer and housing credit imposed during the Korean conflict were removed in 1952 and were not subsequently reauthorized. Margin controls were vigorously used, however, in the face of active movements in stock prices and credit. Margins were cut from 70 to 50 per cent in 1953, and they remained at this level until 1955 despite a substantial rise in both stock prices and credit in 1954. They were raised to 70 per cent again during 1955–1957, and both prices and credit tapered off. A reduction to 50 per cent in 1958 was short-lived, as market revival soon called forth successive increases to 90 per cent late in 1958. Nevertheless, prices and credit kept expanding.

5. *Federal Reserve credit.* The movement of total Federal Reserve credit reflected the behavior of discounts and open-market policy, as well as variations in "float," which tends to rise and fall automatically with business volume. Reserve credit fluctuated around a constant level after 1953. It declined during the recession of 1953–1954 and then maintained a remarkably stable level during the economic expansion of 1955–1957. "Tight money" policy during the latter period consisted in holding the line against expansion. Open-market sales were offset by higher discounting.

The general state of credit conditions is indicated by the short- and long-term interest rates shown in Figure 17-1. The general pattern was clearly what a countercyclical policy should produce. Rates rose during the economic upswing of late 1952, then declined quickly when reces-



*Quarterly averages of daily figures, seasonally adjusted

**Quarterly data, annual rates, seasonally adjusted

P and *T* represent business cycle peak and trough dates

FIG. 17-1. Federal Reserve policies and economic conditions, 1950–1958. Reserve requirement figure is weighted average of all member banks computed by author on deposit distribution for July, 1956. Federal Reserve securities and total credit were seasonally adjusted by author from monthly averages of daily figures. (*Federal Reserve Bulletin; U.S. Income and Output; Survey of Current Business.*)

sion occurred in 1953. They started up again, along with *GNP*, in 1954 and continued to rise through most of the boom. However, the pattern in 1957 was not as satisfactory. Rates declined slightly early in the year during a period of rising *GNP* and prices, and then they rose and stayed high well into the recession. Beginning in November, 1958, they resumed a close correspondence with the state of business. It may be noted that the dips in the long-term corporate-bond rate in recessions were much smaller than those in the short-term rate, especially in 1958.

Table 17-6

Money, Spending, Output, and Prices, 1951–1958

(Dollar figures in billions)

Year	*M*	V_g	*GNP*	*Output* (1954 *prices*)	*Prices* (1954 = 100)	*Interest rate, per cent* (*U.S. long-term*)
1951	$125	2.64	$329	$342	96	2.57
1952	131	2.64	347	354	98	2.68
1953	134	2.73	365	369	99	2.94
1954	136	2.67	363	363	100	2.55
1955	141	2.83	398	393	101	2.84
1956	142	2.96	419	401	105	3.08
1957	141	3.13	443	408	108	3.47
1958	144	3.06	442	399	111	3.43

Note: Money supply includes Treasury deposits and is annual average.

SOURCES: *Federal Reserve Bulletin; U.S. Income and Output; Survey of Current Business.* Money and velocity are computed by the author.

Appraisal. To assist in evaluating monetary policy during this period, Table 17-6 presents data on the behavior of money, spending, output, and prices for 1951–1958.

The most interesting and controversial phase of this period was the boom which began in 1955. In 1956 and 1957, credit restraint appeared appropriate for two reasons. First, capital expenditures showed a strong tendency to rise to levels too high to be maintained. Business spending for fixed capital, which totaled $35 billion in 1954, averaged $46 billion annually in 1956 and 1957. Second, prices rose at a disturbing rate beginning in 1956.

Federal Reserve credit restraint was reflected in the inability of the money supply to grow despite the substantial rise in business activity. With *M* relatively fixed, the demand for loanable funds rose much more than the supply from current saving, and interest rates were pushed up sharply. Higher interest rates caused withdrawal of funds from idle cash balances to meet the increased need for transactions cash.

This reduction in idle balances meant a rise in the *GNP* velocity of circulation of money. The contributing factors were those which we analyzed in Chapter 9. Consumers held a larger proportion of their liquid assets in the form of time deposits. Business firms failed to enlarge their holdings of cash (and other liquid assets) as much as their transactions. Commercial banks sold government securities (or let them mature) and expanded loans. As a result, the public held more time deposits and government securities but less idle cash. Bank loan expansion created active money to replace the idle money.

Was monetary policy effective? The behavior of velocity was something of a safety valve that permitted spending to rise in spite of the inelastic supply of money; but the mere fact that V_g went up does not mean that monetary restraint was ineffective. The probability is that total spending would have gone up even more if money and credit had expanded more. In Chapter 8 we noted that the tightening of credit was accompanied by a reduction in total borrowing from $35 billion in 1955 to $30 billion in 1957, despite rising *GNP* (see Table 8-4). If we assume that the demand schedule for credit was relatively unchanged, the reduction of $5 billion in borrowing measures the impact of credit restraint which raised interest rates on long-term government securities from 2.84 to 3.47 per cent. The resulting restraint on spending amounted to perhaps $3 billion to $4 billion. When multiplier effects are allowed for, this is a substantial amount.

Considerable criticism has been directed at the timing of Federal Reserve actions during this period. Critics felt that credit was eased unduly in 1954 and that restraint was not imposed fast enough in 1955. Since our evidence has indicated that monetary restraint may take effect only after a time lag of a year or so, the imposition of stronger restraint in 1955 might have reduced the magnitude of the price rises and the capital-goods boom which followed. In all fairness, it must be said that Federal Reserve actions were appropriate to the observed conditions in 1955, when neither price inflation nor overinvestment was apparent. The speed with which credit restraint was resumed during 1958 indicated that Reserve officials had taken the lesson of 1955–1957 to heart and were moving to ward off inflation and overinvestment even before observable symptoms became evident.

Federal Reserve policy was also criticized for being unduly slow to change course when recession began in late 1957.[8] The final increase in discount rates came after the economy showed definite evidence of leveling off, and market rates of interest were still rising after the downswing in the economy became apparent. The explanation for the delay in easing credit was that prices continued to rise despite falling output and employment. However, because the price increases were probably a lagging response to previous high demand and increased costs, easing credit sooner would not therefore have worsened price inflation—especially considering the probable time lag before spending would be stimulated. Fortunately the recession proved short-lived. Also it gave a good demonstration of how easier credit for home mortgages could stimulate higher spending in a recession. Residential-construction spending rose by $1 billion in 1958, largely in response to lower interest rates and easing of other credit terms. Lower down payments and longer maturities resulted in part from actions of Federal agencies concerned with housing credit.

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[8] For discussion of policy timing, see Asher Achinstein, *Federal Reserve Policy and Economic Stability 1951–57,* Committee on Banking and Currency, United States Senate, 1958.

The "New Inflation" and the Tight-money Controversy. The performance of the economy in 1956–1958 set the stage for a bitter controversy over monetary policy. Consumer prices, which had been remarkably stable since 1951, began to move upward in the spring of 1956, even though substantial unemployment remained and there was no great pressure of spending on productive capacity.

Economists were by no means agreed on the causes of the renewed inflation. Many argued that it arose from the upward pressure imposed on costs by rising wage rates, a view strongly supported by the upward trend of wage incomes relative to profits and other business incomes. Blame was put on large firms and others able to charge "administered" prices not subject to strict competitive control—steel and auto producers in particular. Such interpretations had an implication very disturbing to conventional economic analysis—that the inflation was not a result of excessive expenditures and that restraint on expenditures was therefore an inappropriate control. However, most economists still feel that demand is a major influence on prices and wage rates. We shall examine some evidence on this matter in Chapter 18.

If demand was a factor in inflation in 1956–1958, it was not effectively restrained by Federal fiscal policy. The Federal cash deficit, which was only $200 million during the downswing fiscal year ending June, 1954, rose to $2.7 billion during the upswing year 1955. Rising revenues caused a shift to a surplus of $4.5 billion in fiscal 1956, but in the next twelve months expenditures shot up over $7 billion and the surplus fell to $2.1 billion. This was poor fiscal performance, and it put the burden of controlling inflation almost entirely on the Federal Reserve. It is always politically attractive for Congress to increase spending when tax revenues are high and surpluses are coming in. But rising government expenditures aggravated the rise in total demand, while failure to reduce the national debt more extensively meant a missed opportunity to hold interest rates down by supplying funds to the capital market.

The Federal Reserve was forced to dig its heels in to prevent the money supply from rising. Tighter credit brought howls of protest. As early as the summer of 1956, the Democratic electoral platform[9] declared:

> The first time-bomb of the Republican crusade against full prosperity for all was the hard-money policy. This has increased the debt burden on depressed farms, saddled heavier costs on small business, foisted higher interest charges on millions of homeowners (including veterans), pushed up unnecessarily the cost of consumer credit, and swelled the inordinate profits of a few lenders of money. It has wrought havoc with the bond market, with resulting financial loss to the ordinary holders of Government bonds.

The platform concluded that "our over-all rate of growth has been crippled and stunted. . . . "

The chorus of criticism revived with increased vigor when credit restraint during 1959 sent interest rates on long-term government bonds up to 4½ per cent. The critics pointed to the price increases of 1956–1958 as evidence that tight money had not prevented inflation. Indeed, some congressmen even argued that higher interest costs were in themselves an inflationary influence. Not only did tight money fail to prevent inflation, the critics clamored, but it harmed growth by depressing output and investment and held back such socially beneficial activities as school construction, housing, and small-business investment. Critics also asserted that the higher interest rates increased the interest burden of the Treasury and of debtors in general for the benefit of the wealthy few.

We shall examine the merits of these arguments in subsequent chapters. To close this section, it is enlightening to have some idea of what economists in general thought about monetary policy in this period. In 1958 the Joint Economic Committee distributed a questionnaire among a great number of university economists and received over 600 replies. Asked to evaluate recent anti-inflation policies, 50 per cent of them said monetary tightness had been used "enough," 26 per cent "too little," and only 19 per cent "too much." About 75 per cent believed that "tight money" had served to dampen inflation in 1955–1957, and 70 per cent thought that it had not contributed to rising prices by raising costs.[10]

SUMMARY, 1941–1958

During World War II (1941–1945), Federal Reserve policy was subordinated to the Treasury objective of financing the wartime deficits at the low interest rates of the 1930s. High taxes and direct controls reduced the inflationary force of wartime finance, but the public was left with tremendously increased holdings of cash and liquid assets at the war's end. In consequence, there was a rapid rise of *GNP* expenditures after the war that aided greatly in reconversion without depression but sent the price level up further. The Federal Reserve was deterred from vigorous credit restraint by its policy of supporting Treasury bonds at par, although it did allow short-term interest rates to rise. Recession in 1949 halted the inflation, but a new spurt came with the outbreak of the Korean conflict in the summer of 1950. Inability to exert effective credit control in this period finally led the Federal Reserve to break away from bond support in the accord of March, 1951. In 1953, Reserve officials reduced their commitment to the bond market further, and open-market policy was restricted to short-term securities under normal circumstances.

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[9] Kirk H. Porter and Donald B. Johnson (eds.), *National Party Platforms, 1840–1956,* University of Illinois Press, Urbana, Ill., 1956, pp. 528–529.

[10] *Economic Policy Questionnaire,* Joint Economic Committee, United States Congress, 1959.

Since this accord was negotiated, Federal Reserve policy has generally been countercyclical, although the timing of changes was questionable in 1954 and 1957. Open-market operations and discount-rate changes have been the sensitive instruments, supplemented by cuts in reserve requirements during recession. Selective controls over consumer and housing credit, authorized temporarily in emergencies during the pre-1951 period, have not been used since 1952.

For the most part, the years following World War II were a period of progress and prosperity. The recessions were mild, as a result of the following aids: appropriate monetary policy, the structural strength of the financial system, the automatic operations of Federal taxes and transfer payments, and, in some cases, deliberate fiscal changes. The problem of inflation has been more disturbing; this was particularly true of the renewed rise of prices in 1956–1958. The Federal Reserve held the money supply virtually constant at the time; this restraint sent interest rates up and aroused much controversy. After a brief interlude of ease during the recession of 1957–1958, restraint was resumed along with even higher interest rates. Federal Reserve policy, which was less harmful than it might have been before 1951 because strong fiscal policy helped check inflation, encountered increasing difficulties after 1954 because Federal fiscal policy had weakened. The tight-money controversy raised a host of issues which will be explored subsequently.

RETROSPECT—THE LESSONS OF MONETARY HISTORY

The unfolding panorama of American monetary history displays a complicated course of institutional developments interwoven with government policies to regulate and control. Emphasis in colonial America was on "managed currency" issued through government finance; there were no commercial banks. After the Revolution, emphasis shifted to the virtues of a monetary "standard" based on precious metals, under which the money supply would be determined by market forces rather than political decisions. However, the rise of commercial banks altered the pattern of these forces from that envisioned by the Founding Fathers, and most of monetary history since that time is a record of efforts to bring the banks properly under control. Most of these efforts prior to the 1930s were attempts to find a structural panacea which would yield beneficial results without permitting discretionary administrative power.

Prior to 1860, the monetary standard was bimetallic, but concurrent circulation of gold and silver was frequently impossible when market-price ratios diverged from the mint ratio. After 1879, gold became the effective standard. While it brought stable exchange rates in a period when foreign trade and capital inflow were very important to the economy, the age of gold was an age of economic instability. First a long price deflation and then a substantial inflation after 1896 undermined maintenance of a stable value for money. These trends were criss-crossed by cyclical fluctuations in prices and employment which also inflicted much hardship. In all fairness, we must add that the dedication to a metal monetary standard over the whole period 1792–1914 kept fluctuations of the price level within reasonable limits.

Structural panaceas in banking were also unsuccessful in preventing bank credit and the money supply from operating as forces for instability. This failure was partly attributable to deficient economic understanding (witness the fallacies of the commercial-loan theory); but in addition, the financial objectives and values of earlier times were less ambitious than our own. The goal of nineteenth century banking policy was chiefly to maintain specie convertibility. Price stability, desirable as it might seem in a debt-ridden economy, was regarded as beyond the powers or proper scope of government policy. And there was no serious problem of instability of production and employment in agricultural America.

Decisive changes in attitude and understanding resulted from the Depression of the 1930s. The whole period between the World Wars furnished dramatic evidence of the economic disaster which could result when money got out of hand. The hyperinflations of the 1920s and the catastrophe of the Depression made it evident that monetary stability was a matter of life or death to civilized society in the industrial countries.

At the same time, techniques by which the government could avoid excessive instability came to be better understood, and there was increased willingness to give the government a positive responsibility toward stabilization. Growth with stability has become the touchstone of economic policy, with government expected to play a prominent role in securing both. This responsibility is most clearly embodied in the Employment Act of 1946.

One lesson of the past is that the structural panaceas did not work very well. Historical evidence supports the idea that fractional-reserve banking cannot be permitted to operate without quantitative control and that a metallic monetary standard is no guarantee of economic stability. Some economists have therefore concluded that "there is no escape from discretion" in administering monetary policy.[11]

However, the record of "managed money" in American history is not outstanding either. Of course much of this experience has come during wartime, which is perhaps an unfair test. Still, administering a war involves so many other burdens and difficulties that it is incumbent upon governments to try to minimize the inflationary use of money creation which has been so abused in the past. Furthermore, the pressures which produced money creation in wartime are not absent during peacetime. This is particularly true of the importunities of Treasury finance and debt management. The threat which Treasury influence represents to monetary stability was clearly demonstrated by the experience of 1946–1951.

Some economists would conclude, however, that the relevant record in evaluating discretionary monetary policy is that of Federal Reserve conduct since 1951 and that we can expect similar performance in the future. Granting that Reserve policy in the 1950s was appropriate, the bitterness of the opposition to credit restraint prevents an easy optimism about the ease with which similar policy can be continued. If the Federal Reserve had not enjoyed the support of the administration during this period, its course could not have been so vigorously pursued.

Among economists, the problem boils down to an ancient question: Is the quantity of money too important to entrust to the government? There are competent economists who answer in the affirmative, even on the record of recent years. Instead of urging a return to the laissez-faire failures of the past, however, they recommend new forms of structural policy designed to promote stability without the dangers inherent in the discretionary powers of present monetary policy. We shall examine these views later.

The record of history gives us a clear indication of some things to avoid in structural panaceas. It illustrates that governments *can* manage money properly—but not that they *will*—and provides enough cases where they didn't to make a skeptical position still tenable. The chief constructive achievement of American monetary development has been to reduce the danger that undesirable changes in the money supply will result from the movements of precious metals or bank credit. We cannot be certain that undesirable monetary variations will not result from the exigencies of government finance.

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[11] E. A. Goldenweiser, *American Monetary Policy*, McGraw-Hill Book Company, Inc., New York, 1951, p. 129.

QUESTIONS FOR STUDY

1. "The Federal Reserve banks can hold interest rates at a given level only by relinquishing control of the quantity of money." Discuss.
2. During World War II, Treasury finance might have been aided by *high* interest rates but might have been injured by *rising* interest rates. Why the distinction?
3. The Federal Reserve's bond-support program was frequently defended on grounds that it was needed to assure justice to holders of government bonds. Discuss this assertion, with reference to the composition and structure of the public debt and the real value of bonds.
4. "Tight money after 1955 may have been the result of Federal fiscal policy." Explain.
5. Outline the development of each of the following themes of American monetary history:
    a. The impact of war on monetary institutions and policies
    b. The monetary impact of business depressions
6. Although the accord of March, 1951, directly concerned Federal Reserve open-market operations, it ultimately changed the status of their other policy instruments as well. Describe and explain the changes.

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PART SEVEN

CURRENT PROBLEMS OF MONETARY POLICY

CHAPTER 18

OBJECTIVES AND TECHNIQUES OF MONETARY POLICY

INTRODUCTORY

One of the main reasons for studying about money is to get a better idea of what should be done about it. Description, theoretical analysis, and historical review are all valuable because they provide guides to wise public policies in the future. In any discussion of policies, one must start with a clear notion of the ultimate objectives to be sought. These ends involve basic social values, which may differ among persons, places, and times. Given the goals of policy, one can examine the techniques. The logical starting place is a discussion of those methods currently in use by the Federal Reserve. After examining the mechanics of monetary policy and its possible effectiveness, we shall look at the way it is formulated and administered and discuss suggestions for improvement.

To limit the scope of our discussion, we shall direct our attention primarily at *monetary* policy—control of the quantity of money. Some attention must be given to the quantity and cost of available credit, but we shall not deal at length with problems of the allocation of credit among alternative uses nor with *banking* policies concerned with solvency and honesty of operation.

OBJECTIVES OF MONETARY POLICY

Some Important Social Goals. Few would dispute that the objective of monetary policy should be to promote economic welfare, but this concept has many dimensions. Much of the current dispute over monetary policy reflects implicit disagreement on the priority of specific elements of economic welfare. Among those elements the following are prominent:

1. Assuring high and stable levels of current output and employment

2. Promoting the steady rise of living standards and employment opportunities through economic growth
3. Allocating productive resources to their most efficient and socially beneficial uses
4. Securing an equitable distribution of real incomes and economic opportunities among individuals

Monetary policy has some relation to each of these goals. Output and employment depend chiefly on the level of *GNP* expenditures, which can usually be enlarged by increasing the money supply and easing credit. Economic growth depends heavily on a high rate of capital formation, much of which is financed by borrowing. Easy credit should promote a high rate of investment. For allocating resources, reliance continues to be placed primarily on the price system as a guide to what to produce and how. To serve this function, the price system requires reasonable stability of the price level and the value of money.

The relations of monetary policy to the distribution of incomes and wealth are numerous and complex. Variations in interest rates, in so far as they affect interest *payments,* alter the distribution of real income between debtors and creditors. Interest variations also change the market value of fixed-income assets and affect owners who sell before the assets mature. Indirect monetary relations are perhaps even more important. One of the major causes of poverty and inequality in the past has been unemployment. A policy which keeps unemployment low will contribute to improving income distribution. Another important influence on distribution patterns arises from changes in the price level. Whether such changes are objectively bad is less obvious than the fact that they may be violently disliked by the affected parties. Price stabilization can help avoid such unpleasant shifts.

In addition, equitable distribution of economic opportunity includes fair access to credit for small as well as large borrowers. Although this fairness is not primarily the responsibility of monetary policy as such, it figures so prominently in discussions that it cannot be ignored.

Importance of Stabilization. All these objectives are important, but there are several reasons why it may be preferable for monetary policy to be concentrated on economic stabilization—that is, on avoiding depressions and inflation. First, monetary policy is a major influence on stability, while its direct influence on most other elements of economic welfare is not so great. Second, other government policies such as antitrust, taxation, or government expenditures can deal directly with the objectives of growth, allocation, and distribution. Third, pursuing stabilization will probably contribute indirectly to the other objectives. By helping avoid declines in *GNP* expenditures, monetary policy will help promote high output and employment and avoid the maldistributive effects of unemployment and price deflation. By checking rapid rises in *GNP* expenditures, monetary policy will prevent the maldistributive effects of inflation and the distortions in resource allocation which it can entail. Instability is a great enemy of small business and new business, for during inflation such firms have often been cut off from needed supplies, and during depression they are financially vulnerable to bankruptcy. Finally, a stable economy provides an environment in which business incentives to expand capacity are strengthened by the assurance that extreme declines in the demand for goods and extreme increases in prices and costs will be avoided.

Causes and Consequences of Economic Instability. One of the great weaknesses of capitalism has been its susceptibility to wide fluctuations in production, employment, real incomes, and price levels. Instability in the fifteen years following World War I was the major cause of the world-wide social crisis and political and economic upheaval which did away with capitalism and democracy in many areas. In Germany the successive impact of hyperinflation and deep depression led to the rise of Hitler, and through him to World War II. In France, England, and the United States, the Depression brought forth strong attacks on free enterprise and aroused bitter class conflicts. Karl Marx long before had anticipated that the end of capitalism would come through its ever-increasing crises of depression, a forecast which appeared very accurate in the 1930s. Public policies designed to avoid extremes of economic instability are essential to the preservation of capitalism and of political freedom and democracy.

The immediate force making for economic instability has been variation in the flow of expenditures for goods and services. Fluctuations in spending are just about inevitable in a growing, laissez-faire economy organized around money, specialization, and exchange. In the past, the high investment accompanying growth has often been unstable, because of acceleration effects, varying rates of innovation, or financial factors such as an unstable banking system, speculation, or corporate manipulation. Unstable investment reacted on consumption through the multiplier effect, and the fluctuating interplay of the two was complicated by further reactions in the financial system and the balance of international payments. Experience with instability tended to perpetuate it by creating a pattern of expectations of a self-aggravating sort. Besides these "economic" forces, one can hardly ignore the tremendous instability resulting from wars in the past three centuries.

We can illustrate the possible interaction of the economic forces by tracing a "typical," but nonhistorical, business cycle. In a period of depression and unemployment, the economy might start to recover for a number of reasons. Spending might rise because of external factors such as war or technological innovation, or merely because business firms begin to replace worn-out equipment or depleted inventories.

Once *GNP* begins to move upward, its rise becomes cumulative. Consumers receive higher disposable incomes and spend more on consumption. Rising *GNP* encourages induced investment to match capacity to demand, and rising business incomes provide investible funds. Consumers and business firms begin to expect further increases in prices and incomes and spend more freely. Bank risk evaluations are revised in a manner more favorable to borrowers, who are also more willing to borrow. The money supply rises, and existing excess reserves are spread around to more banks. Speculation in commodities, stocks, and real estate quickens.

There are a number of reasons why this cumulative upswing is likely to slow down. The rate at which *GNP* increases will probably not be sufficient to keep induced investment rising indefinitely, and its slackening will further slow the rise of *GNP*. Banks will reach the limits of their excess reserves. As the rise of *GNP* continues, consumers, business firms, and speculators—perhaps with an eye on past history—may regard further increase as progressively more unlikely and look for an upper turning point to be reached. As full employment is approached, many buyers will be forced to wait increasing lengths of time for orders to be filled.

Slackening of the rate of growth of *GNP* can easily lead to an upper turning point. Induced investment may then drop sharply. Speculators who feel the top of the market has been reached will try to sell out; the plateau cannot be maintained, and *GNP* may start down. Once a downswing is under way, it can acquire the same cumulative character as the upswing. The multiplier and accelerator keep pushing down induced consumption and investment. Worsening conditions may dampen expectations and lead to further contraction in spending. Some prominent businesses may go bankrupt, thereby causing adverse publicity and perhaps forced liquidation or other unsettling action. Ultimately, slackening in the rate of decline and reluctance of consumers to cut spending can halt the decline.

Fortunately, in reality the fluctuations of the business cycle have not always had this fatal uniformity of behavior. There has usually been sufficient variety in financial expectation and action or sufficient concentration on the long rather than the short run for movements in one part of the economy to be offset rather than aggravated by movements elsewhere. But the serious fluctuations have been much like that described here.

The Special Problem of Inflation. Conventional economic analysis has, since Keynes, treated inflation as merely a problem of excessive expenditure for current output. Once full employment is (nearly) reached, higher spending means higher prices.

While this explanation certainly suffices for most of the inflationary experiences of the United States, including those of 1941–1948 and 1950–1951, recent experience has led to claims that inflationary dangers of a new sort threaten the economy even in the absence of excessive spending at full employment. The chief culprit is wages; trade-union pressure for higher money wages, it is claimed, is being exerted continually. Oligopolistic mass-production industries, which charge "administered" prices, will give in easily to union demands and pass them along to the public through higher prices. Wage pressures in atomistic industries will cause price increases through reductions in output and squeezing-out of marginal firms. Adherents of the "cost-push" explanation fear that inflation cannot be controlled by restraints on spending. Such restraints will merely result in lower output and employment without stabilizing prices. This is obviously a disturbing implication for monetary policy.

Table 18-1

Patterns of Wages and Incomes, 1953–1958

(Dollar figures in billions)

Year	*GNP*	Labor income		Business income		Consumer prices (1947–1949 = 100)	Unemployment, per cent
		Total	Hourly	Corporate	Non-corporate		
1953	$365	$209	$1.77	$37	$41	114	2.9
1954	363	208	1.81	34	40	115	5.6
1955	398	224	1.88	43	42	115	4.4
1956	419	242	1.98	42	44	116	4.2
1957	443	255	2.07	42	45	120	4.3
1958	442	257	2.13	37	47	123	6.8

Notes: Total labor income is "compensation of employees"; hourly wage rate is for manufacturing and includes overtime. Corporate profits are before tax; unincorporated business income includes farms.

SOURCES: *Economic Report of the President,* 1959; *Federal Reserve Bulletin,* December, 1959.

There is some evidence to support the view that wages were an autonomous inflationary force in 1955–1958. First, we may contrast that more recent period with the prosperous late 1920s. Then, despite economic growth and full employment, wage rates remained stable and prices fell slightly. In recent years, however, wage rates have advanced every year. More detailed information on the recent pattern is contained in Table 18-1. Over this period as a whole, hourly wage rates rose every year, including the recession years 1954 and 1958. Their rise averaged between 4 and 5 per cent annually, a level above the average rise in labor productivity.

During 1956–1958, prices rose even though unemployment was substantially higher than in 1953. Total wage payments increased steadily during 1955–1957, while business income remained steady after its initial rise in 1955.

The evidence certainly suggests that wage movements have had something to do with inflation. Extremist critics argued that the experience of 1956–1958 proved the ineffectiveness of monetary policy. Prices rose, while tight money served merely, they claimed, to cause excessive unemployment and slow down economic growth. However, most economists did not regard the cost-push theory as a major independent explanation for inflation. Table 18-1 shows clearly that the rate of wage increase tended to be higher during prosperous times; this tendency indicates the influence of the demand for labor. A detailed investigation of individual price movements produced the conclusion that "nearly every case of significant price rise in 1955–1956 can be explained largely in terms of heavy demand." In 1957, the wage-cost-push factor appeared to exert some independent influence, but it was still eclipsed by demand influences and by shifts in agricultural supply resulting from weather conditions.[1] While the demand for all products was not excessive, it was concentrated unevenly on individual items. The rise in the total price level was facilitated, however, by the failure of prices to fall in areas where demand was less strong, a tendency enhanced by such government measures as farm-price supports and import restrictions.

The basic questions of whether restrictions on demand can adequately control price increases and whether such control is possible without adverse effects on output are still much disputed among economists. Some feel that moderate price increases are either the inevitable concomitant of or the actual progenitor of full employment and high investment. Professor Hansen has argued that inflation only becomes dangerous when the price increases do not bring higher output and has deplored tendencies to make "a fetish of rigid price stability" for fear that in pursuing it "we are likely to fall far below the growth of which we are potentially capable."[2] To date, this is a minority view, and the evidence of the past does not always support it. The economy made impressive growth in the late 1920s when prices were declining and grew more rapidly in 1952–1953 with stable prices than in 1956–1958 when they were rising. Probably it is not price changes per se that are important, but their relation to wages. The squeeze on profits in 1956–1957 certainly reduced business buoyancy.

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[1] Richard T. Selden, "Cost-Push versus Demand-Pull Inflation, 1955–57," *Journal of Political Economy,* February, 1959, pp. 12–14.

[2] Alvin H. Hansen, *The American Economy,* McGraw-Hill Book Company, Inc., New York, 1957, pp. 42–43.

However, much of the anti-inflation sentiment of the late 1950s was also exaggerated and irrational. Price increases since 1951 had little adverse effect on the distribution of incomes and wealth, since salaries in teaching and government, interest rates, and social security benefits all increased more. Much of the price rise was counteracted by product improvements. The chief adverse effects were probably on retired persons receiving fixed private pensions.

Part of the opposition to mild inflation reflects the fear that expectation of further price rises will cause acceleration of buying. But a recent survey of consumer attitudes concluded that "in peacetime the notion that one should buy before prices rise is not part of the thinking of the vast majority of American people."[3] While there was some scare buying of stocks, holdings of fixed-value savings assets grew enormously in the 1950s.

However, there are strategic advantages in a public-policy outlook vigorously opposed to all further price rises. Such an outlook lessens the danger that the public will expect further inflation and try to beat it. Opposing all price-level increase is more attractive to public opinion than any quantified "toleration limit" and, speaking realistically, may be necessary to keep price rises within such a limit anyway.

General Approaches to Stabilization. The focal point in economic stabilization is the behavior of GNP expenditures. Variations in spending are the major factor causing variations in production, employment, and prices. Tendencies toward harmful variations are inherent in a money economy, and the government cannot safely ignore them. Furthermore, past experience demonstrates that public opinion will not tolerate government inaction in face of depression or inflation and that when the government does not approach the problem in the right manner, by influencing expenditures, it is likely to do so in the wrong manner, through direct intervention with individual prices and products in a way detrimental to competition and free enterprise.

The first task of economic stabilization is to reduce undesired variations in aggregate *GNP* expenditures. To do this, it may be necessary to pay attention to the behavior of individual sectors as well. The widest spending variations have occurred in business and consumer spending for durable goods. Such expenditures can be postponed easily and are sensitive to changing expectations. Excess spending for durables in a

[3] George Katona and Eva Mueller, *The Outlook for Consumer Demand,* Survey Research Center, University of Michigan, Ann Arbor, Mich., July, 1959.

boom can aggravate problems in the ensuing recession by leading to excess capacity and a flooded market.

One of the main limitations in stabilization policy is the difficulty of forecasting the future behavior of *GNP* and its components with sufficient accuracy. Furthermore, there are delays in gathering relevant information and determining appropriate actions; more delays may ensue before the actions taken accomplish the desired effects. Such lags not only make it more difficult to take the right actions for stabilization but also raise the disturbing possibility that government may too often take the wrong ones. Policy actions may be consistently out of phase, always taken too late for the situation they were intended for and tending to aggravate subsequent movements.

These timing difficulties suggest certain desirable attributes for stabilization policies. First, efforts should be made to eliminate the causes of instability in private spending itself, particularly the cumulative tendencies in upward or downward movements. Banking and finance have been pretty effectively neutralized as destabilizing forces, and there are some indications that business capital expenditures may have become less volatile than they once were, perhaps because of expectations that serious instability will not afflict the economy.

In addition to improvements along these lines, stabilization can be partly achieved through automatic devices which require no forecasting or current discretionary actions. Both monetary and fiscal policies have this attribute to some degree. During a period of rising *GNP*, rising demand for money and loans will tend to tighten credit unless the Federal Reserve takes action to loosen it. Tax revenues will rise, and certain government expenditures (such as unemployment compensation) will fall. If *GNP* is falling, credit will tend to ease automatically (though not for high-risk borrowers), and fiscal policy will show lower revenues and higher expenditures.

If additional action is needed, it is desirable that it be of a type which can be taken quickly. This is one of the great immediate advantages of monetary policy. The general outlines of a countercyclical monetary policy are easy to formulate. The monetary authorities should slow down or prevent the rise in bank reserves and the money supply during boom periods, tighten credit, and permit interest rates to rise. Such actions would help prevent price inflation from developing and would also keep durable-goods spending from bunching at high levels which could not be maintained very long. In a period of recession and unemployment, bank reserves and the money supply should be increased, so that credit will ease. This should help raise total spending and, particularly, provide a stimulus for durable-goods purchase, where credit is extensively used and where the burden of recession may have been concentrated.

Granting the desirability of stabilization does not tell us how vigorously monetary policy should pursue it. Some economists take the view that monetary policy should content itself with preventing money and credit from being an active force for instability, as they often were in the past. Others feel that strong efforts should be made to use monetary measures to counteract tendencies toward instability arising elsewhere in the economy.

The first view implies a limited objective. So long as money and credit were plentiful during slumps and restrained during booms, the monetary authorities would presumably not be held accountable for the degree of instability which might result. The second viewpoint, however, provides no limits to what the monetary authorities may be called on to do. It is not enough that interest rates be higher in booms; they must be enough higher to prevent inflation. Carried to extremes, any excess of unemployment or price increases could become *ipso facto* a sign that monetary policy was defective. It seems reasonable that the force of monetary actions be proportional to the existing deviations from the desired level of *GNP* spending, but it is probably unreasonable to expect monetary policy alone to prevent such deviations.

Monetary Policy and Growth. There is little doubt that a growing economy requires a growing supply of money and that, even if monetary policy aims chiefly at stabilization, it should also provide for such increase. But should it do more? Some critics argue that policy should aim at low interest rates and easy credit to encourage borrowing for capital expenditures. This view ignores the question of where the real resources which the borrowers will acquire are to come from. If there is substantial unemployment, encouraging borrowing through easy credit and monetary expansion is highly desirable for both short- and long-run reasons. If there is little unemployment, making credit artificially available by creating money sets the borrowers to bidding resources away from other uses through price inflation. Such a process may induce some "forced saving" as consumers are obliged by rising prices to consume less in real terms. There is no insurance that much added growth can be gained in this way; in any case, it is a poor method.

The conclusion seems warranted that growth, like income distribution and resource allocation, is best promoted by other types of government policies and that monetary policy should concern itself chiefly with achieving stabilization, while allowing for a rising trend in the money supply. Government expenditures for construction and research, tax policy, and a fiscal policy aimed at debt reduction are better methods of promoting growth without sacrificing stability.

AUTOMATIC MONETARY POLICIES

The Role of Gold. During much of American monetary history, variations in the money supply were determined automatically by the workings of the monetary standard, either bimetallic (1792–1861) or gold (1879–1914). Neoclassical economics provided numerous impressive rationalizations for the gold standard as an automatic economic stabilizer, but it did not generally work as a stabilizer for the United States. Too often gold inflows aggravated boom periods, and outflows contributed to worsening panics and depressions. The experience of the 1920s weakened adherence to the automatic gold standard, and that of the 1930s destroyed it. In its place was adopted the greatly modified gold-bullion standard now in effect in the United States.

Under present arrangements, gold remains the ultimate reserve of our monetary system, through the 25 per cent gold-certificate reserve required for Federal Reserve demand liabilities. Early in 1959, the monetary gold stock of about $20 billion served as reserve for about $140 billion of money. However, domestic money is not convertible into gold on demand; the Treasury will sell gold only to foreign monetary authorities or for domestic manufacturing or artistic use. Changes in the monetary gold stock do tend to cause equal changes in the money supply and bank reserves, unless countervailing actions are taken by the authorities.

The present role of gold is to serve as an international medium of payment and store of value. Gold transfers still settle international balances. Although few countries have relinquished control of their domestic monetary affairs to international gold movements, such transactions may play a convenient disciplinary role against inflation. Even in the United States, the substantial outflow of gold in 1958–1959 was used to strengthen the appeal to public opinion for a strong stand against inflation.

There is still heard the argument that we should restore the gold-coin standard. The reasoning behind this stand is suggested by the following excerpt:[4]

> Our irredeemable currency is a dishonest currency. It gives our Treasury and Federal Reserve authorities privilege without corresponding responsibility. Its use has deprived our people of their power to exercise control over the government's use of the public purse. It enables the government to pur-

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[4] Walter Spahr, *Our Irredeemable Currency System,* Economists' National Committee on Monetary Policy, New York, 1950, pp. i, 8.

> chase the support of pressure groups and to put the people's purse at their disposal.
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> When our people had a currency redeemable in gold, every individual had power, to the extent he possessed money and deposit currency, to register his disapproval of the policies and practices of the banks and Treasury by demanding redemption of their promises to pay. Each individual had the power to send his message of disapproval to the central signal system in the Treasury and Federal Reserve banks—to their gold reserves—over the golden wires, as it were, provided by a system of currency redeemable in, or convertible into, gold. When distrust of the value of the banks' and Treasury's promises spread, the number of warning signals increased. Every demand for redemption was recorded by a drawing down of the gold reserves of the Federal Reserve banks or the Treasury.

While the objectives of curbing inflation and keeping government financial policies responsible are important and desirable, the solution envisioned above verges on the preposterous. It suggests a situation in which those who control large sums of money, namely, wealthy individuals and business firms, would be empowered to impose deflation on the monetary system any time they disliked the policies of the government. No doubt control of government finance in a democracy is a problem, but this is no solution for it.

The "classical" gold standard derived its vitality not from mechanical arrangements but from a strong underlying public faith that gold was inherently valuable, that it "was" money, and that other things would derive and maintain their value from parity with gold. This faith provided, as Dean Bach puts it, "a monetary 'religion' that brought the government and the public up short when they felt the urge to spend more than they were taking in. . . ."[5] Unfortunately, as Professor Spahr's remarks remind us, this "religion" served as a barrier against implementing effective monetary and fiscal policies to deal with depression. In any case, the faith is gone, and merely restoring the mechanical arrangements without it would not be very constructive. The present arrangements respecting gold are useful and do contain a faint hint of anti-inflation discipline, without deterring desirable antidepression actions. There is no urgent reason to change them.

The Commodity Reserve Currency Proposal. During the 1930s there was developed an interesting proposal for an automatic monetary system which would incorporate the virtues of the gold standard but not its defects—the commodity reserve currency proposal.[6] Under this proposal, the government would define the dollar in terms of a "bundle" of standard commodities, taken as a group rather than individually. For instance, the dollar might be defined in such a way that $500 would be equal to the sum of the following commodities:

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[5] George Leland Bach, *Inflation: A Study in Economics, Ethics, and Politics*, Brown University Press, Providence, R.I., 1958, p. 45.

[6] See Benjamin Graham, *Storage and Stability*, McGraw-Hill Book Company, Inc., New York, 1937.

10	bushels of wheat, specified grade
1	ton of pig iron
2	bales of cotton
1	ton of crude rubber
10	barrels of crude petroleum
1	ton of sodium carbonate
1	ton of dry milk solids

The government would then stand ready to buy or sell these commodities en bloc in unlimited quantities at that aggregate price. No transactions would be made involving individual items. Anyone wishing to buy would have to take the whole group, in the proportions indicated, and anyone wishing to sell to the government would have to provide all items in the given proportions.

Financing of the transactions would be similar to the workings of the gold standard. When the government purchased, it would issue new money to finance the purchases. When it sold, money would be withdrawn from circulation.

Two advantages are claimed for the system. First, it would tend to stabilize the average price of the group of commodities in the reserve bundle, and through them the price level as a whole. If the market price of the bundle rose above $500, people would buy the commodities from the government. If the price fell below that level, producers would sell to the government instead of to the market. Prices of individual items could vary, but only in such a way that increases in some were offset by decreases in others. Thus direct price-fixing of individual items would be avoided.

The second advantage would be the system's ability to promote general economic stabilization through automatic monetary and fiscal effects. During recession, producers of the commodities in the bundle would always find a market for them with the government. Production thus would not fall off seriously, producers' incomes and expenditures would be maintained, and the money supply would increase. During an upswing, any tendency toward general price increases would be met by withdrawal of goods from the government stockpile, which would cut down the money supply and prevent inflation.

A number of technical obstacles would be encountered in trying to set up such a system. It would probably have to be initiated during a depression, to enable the government to start off as a buyer and to acquire a substantial stockpile of goods. The choice of products would be difficult. Ideally, they should come from as many economic sectors and geographic areas as possible and include some imported products. Items included would have to be standardized and easy to store. Many commodities could be handled through the medium of negotiable warehouse receipts; but perishable commodities and the great variety of finished consumer goods could not easily be included. Furthermore, the system would have to avoid products subject to monopoly influence by business or labor.

Setting the prices for individual items would be the target for great political pressure from producers. It would be hard to avoid a commitment to support individual products. Perhaps the main defect of the proposal is that it could never be enacted in proper form.

The commodity reserve idea enjoys much favor among economists. In recent years, it has been advocated particularly as a means for international stabilization of raw-material prices. Its theory indicates that automatic monetary mechanisms are not *ipso facto* undesirable; but the political obstacles in the way of adoption or successful function are enormous. In particular, the system would not have the quasi-religious sanction which gave the gold standard its influence over public opinion.

The "Automatic Pilot" Growth Proposal. Recently another approach to automatic monetary policy has gained prominence through notable statements by Professors Milton Friedman and Edward S. Shaw. The proposal stems from a dissatisfaction with discretionary policy as exercised—indeed, Professor Friedman argues that time lags make it probable that discretionary actions will move in the wrong direction.

The proposed solution is to stop trying to use monetary policy as a countercyclical device, since such attempts will fail. Instead, in Shaw's terms, the monetary system should be put on an "automatic pilot" by increasing the money supply each year by a constant percentage, calculated in terms of the long-run growth needs of the economy—probably about 3 to 4 per cent per year. There would still remain some automatic countercyclical variation in credit conditions, arising from fluctuations in demand for credit. The money supply would rise enough to take care of normal growth needs but not enough to permit serious inflation.[7]

There is much to be said for such a policy as an alternative to the errors of the past. The real issue is whether current discretionary policy can do any better than the limited objective here envisioned. The evidence to date is inconclusive. Discretionary policy is in the saddle, and it will probably stay there for the next few years.

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[7] Milton Friedman, "The Supply of Money and Changes in Prices and Output," in *The Relationship of Prices to Economic Stability and Growth,* papers submitted by panelists to the Joint Economic Committee, United States Congress, 1958, especially pp. 254–256; Edward S. Shaw, "Money Supply and Stable Economic Growth," in Neil Jacoby (ed.), *United States Monetary Policy,* The American Assembly, New York, 1958, pp. 52–71.

THE TECHNIQUES OF MONETARY POLICY

Classification. It is convenient to think of monetary policy in terms of three types of government actions. First, government policy determines or influences through legislation many important structural features of the system by providing for deposit insurance, setting the price of gold, etc. Second, a wide range of government fiscal policies, including taxation, expenditures, public-debt management, and direct lending, have substantial monetary implications but are generally undertaken on the basis of other considerations. Third, the Federal Reserve System conducts a discretionary monetary policy within the limits set by its own enabling legislation and by the various factors in the second category. We shall begin with and emphasize the third type and then deal with the others as they relate to the Federal Reserve.

Present Federal Reserve techniques are the product of an evolutionary process. The variable discount rate was established in the original Federal Reserve Act, but the "tradition" against borrowing has grown up since and might have displeased some of the founders. Open-market operations, while authorized in 1913, were not "discovered" as a credit control device until a decade later. Authority to vary reserve requirements and to set margin requirements was conferred in the 1930s. Since then, the only changes have been the temporary authority over consumer and housing credit, which has not been in effect since the Korean conflict.

The objectives of contemporary Federal Reserve policy are also the result of an evolutionary development. The original law implied a philosophy of "accommodation," of "productive credit," and of adherence to gold convertibility. Although during World War I and again from 1937 to 1951 much Reserve concern was devoted to aiding Treasury finance, the goal of economic stabilization was always to some degree a Federal Reserve objective. The System was initially created to prevent panics and reduce speculation. In the 1920s and 1930s a broader concept, one of continuous stabilization, gained acceptance. Since 1951, the System has decisively accepted such a concept. In 1952, Chairman Martin characterized the System's aim as "to minimize economic fluctuations caused by irregularities in the flow of credit and money, foster more stable values, and thus make possible the smooth functioning of monetary machinery so necessary to promote growth of the country and to improve standards of living. This statement of purpose in layman's language applies to the credit and monetary sphere the principles set forth in . . . the Employment Act of 1946."[8]

The Federal Reserve has provided a very satisfactory solution to the seasonal variations in money and credit which so plagued the economy in the nineteenth century. It serves as lender of last resort capable of aiding individual banks in liquidity difficulties. It has contributed to improving the quality of the money supply by its facilities for currency issue and for clearing and collection of checks. However, our real concern is with the instruments of general credit control—discounting, open-market operations, and reserve requirements—and with selective controls in so far as they bear on general credit policy.

Rediscounting. Since 1951, member bank use of Federal Reserve discount facilities has regained much of the importance it held in the 1920s. However, the original notion that banks would *re*discount the IOUs of their customers has been replaced by direct Reserve lending to member banks on collateral of United States securities.

Discounting is something the banks do when they must; it is a method of coping with reserve deficiency rather than of acquiring added reserves for expansion. Member banks have long felt a reluctance to operate on borrowed funds, as contrasted with deposits, and they still try to minimize their borrowings at the dates on which their public statements of condition are made up. Indeed, many member banks avoid borrowing from the Federal Reserve at all. This reluctance received strong reinforcement when the Federal Reserve Board issued in 1955 a revision of its Regulation A on discounting, which declared:

> Federal Reserve credit is generally extended on a short-term basis to a member bank in order to enable it to adjust its asset position when necessary because of developments such as a sudden withdrawal of deposits or seasonal requirements for credit. . . . [It] is also available for longer periods when necessary in order to assist member banks in meeting unusual situations, such as may result from national, regional, or local difficulties or from exceptional circumstances involving only particular member banks. Under ordinary circumstances, the continuous use of Federal Reserve credit by a member bank over a considerable period of time is not regarded as appropriate.

The regulation specified that requests for discounts would be considered in relation to the general condition of the economy as well as the condition of the borrowing bank.[9]

During a business boom the volume of discounting tends to increase, partly because some banks have permitted loans to outreach existing reserves, partly because reserves may be reduced by currency drains or Federal Reserve sales of securities. The ability to rediscount may therefore appear to be a loophole in credit restraint. However, Federal Reserve officials do not accept this view, for the bank which obtains its reserves by discounting is under pressure from its Reserve bank to halt loan expansion and to make some permanent adjustment in its asset portfolio—perhaps by selling securities—which will enable it to pay off its loan. Such adjustments spread the pressure to other banks. Thus discount operations are used by Reserve officials as a way of exercising "moral suasion" over member banks. Should they wish, the Reserve banks could actually resort to credit rationing by turning down some loan requests. So far they have not done this.[10]

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[8] *Monetary Policy and the Management of the Public Debt: Replies to Questions*, Joint Economic Committee, United States Congress, 1952, part 1, p. 212.

[9] Board of Governors, Federal Reserve System, *Annual Report*, Washington, 1957, pp. 9–10.

This official attitude toward discounting is reflected in the importance which Reserve officials attach to the concept of "net free reserves," defined as the difference between excess reserves and borrowings from the Federal Reserve. General credit conditions and interest rates show a strong correlation with the volume of free reserves at any given time.

The willingness of member banks to borrow when faced with reserve deficiencies will depend somewhat on the Federal Reserve rediscount rate. However, it is not so much the level of the rediscount rate itself but its relation to the rate of interest on secondary reserve assets, such as Treasury bills, which is influential. If the rediscount rate is below the rate on Treasury bills, banks will have a financial incentive to borrow if a deficiency arises. If the rediscount rate is higher than the bill rate, however, the banks will be more inclined to reduce their holdings of bills during a deficiency.

In the 1950s, changes in the rediscount rate were used as a flexible countercyclical instrument. Raising the rate was a common measure used to tighten credit during a period of boom and inflation, and reductions in the rate were often used to ease credit in recession. However, the effects of such changes cannot be analyzed in isolation. Often the rediscount rate is raised when the bill rate is rising, and the net effect may be merely to prevent an undesired increase in the incentive to borrow. During 1952–1958, rediscount-rate variations were not as wide as those in the Treasury bill rate. Consequently there was little incentive for banks to borrow in recession years 1954 and 1958, when the bill rate fell far below the rediscount rate. By contrast, the bill rate went above the rediscount rate for a time in 1953 and 1957 and again after recovery began in late 1958;

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[10] C. R. Whittlesey, "Credit Policy at the Discount Window," and Robert V. Roosa, "Comment," *Quarterly Journal of Economics,* Harvard University Press, May, 1959. Whittlesey concluded that "there is no significant evidence that resort to discounting has been on such a scale as to weaken appreciably the efforts of the Reserve authorities to tighten credit" (p. 215).

hence the incentive to borrow was strengthened at a time when such borrowing was perhaps inappropriate. (The data are shown in Figure 17-1.) The volume of member bank borrowing shows a definite correspondence with this interest-rate spread. It is reasonable to conclude that the cyclically perverse movement of discount volume was less severe than it would have been if the rediscount rate had been kept constant. However, such perversity could be further reduced by even more vigorous variations in the rediscount rate.

Discount policy is integrated with open-market policy. Federal Reserve security sales may force the banks to borrow, which in turn increases pressure for them to restrict lending. When credit ease is appropriate, Reserve bank purchases can provide funds which enable the banks to pay off their discounts; thus they feel more free to expand their own loans.

Reserve Requirements. Since the 1930s the Board of Governors has had the authority to vary reserve requirements for member banks within limits set by law. When open-market policy was immobilized by supporting bond prices, reserve requirements received considerable emphasis as a control technique that culminated in the high levels in force in 1948. Since 1951, however, reserve-requirement changes have been relegated to a secondary position. Reserve officials regard them as a "clumsy and blunt instrument." Changing requirements affects all banks within a given classification, whatever their individual reserve excess or deficiency. Even the smallest feasible requirement changes of 0.5 per cent cause large changes in the volume of excess reserves—about half a billion dollars in the summer of 1959. Changes in requirements are disruptive to bank management, and high reserve requirements are one of the most apparent disadvantages to membership in the Federal Reserve System.[11]

As a consequence, changes in requirements have been confined to situations where a broad change in required reserves seemed feasible and desirable. For instance, requirements were increased in the 1930s when gold inflow had pushed member bank excess reserves abnormally high. Reductions were made during the recessions of 1953–1954 and 1957–1958.

Variations in reserve requirements have two effects: they alter the amount of existing reserves required for existing deposits, thus increasing or reducing excess reserves; and they alter the expansion coefficients which determine by how much loans and the money supply can in-

[11] Ralph A. Young, "Tools and Processes of Monetary Policy," in Neil Jacoby (ed.), *United States Monetary Policy,* The American Assembly, New York, 1958, pp. 28–29; *Member Bank Reserve Requirements, Hearings before the Senate Committee on Banking and Currency,* 1959, p. 53.

crease for a given amount of excess reserves. However, effects on coefficients are not large if one allows for time deposits and coin and currency. On the basis of the pattern of June, 1958, a dollar of excess reserves could have created about $2.75 of additional money and about $4.70 of total loans. At that time, requirements for demand deposits averaged about 15 per cent. Raising the average to 20 per cent would have cut the expansion potential to about $2.45 of money and $4.25 of loans. Thus the important effects of changing requirements are on the volume of excess reserves.

There is no strong need for the Federal Reserve to rely on variations in reserve requirements, since any desired changes in bank excess reserves can be achieved by open-market policy. Still, it is desirable for the Board to retain the power to change requirements, just in case.

What about the general level and structure of reserve requirements? We have noted that requirements were shifted downward after 1953 to a more "normal" level at which the competitive disadvantage of member banks relative to nonmembers and nonbank institutions would not be so galling to the members. The American Bankers Association would like further cuts; in 1957 they urged that requirements be cut to 10 per cent for demand and 2 per cent for time deposits, with vault cash to count as reserves. But high average requirements, whether flexible or not, reduce somewhat the potential instability inherent in the banking system. The only advantage to the public from low requirements is to keep banks from withdrawing from the System. Since current requirements are not driving them out, there is no need to reduce them further.

For many years, the structure of requirements has followed the geographic pattern established in the National Banking acts. The reserve differentials were based on location, in order to protect bank liquidity in the areas where interbank deposits were concentrated. However, during the 1950s the Federal Reserve brought requirements for central reserve and reserve city banks closer to each other, and in 1959 Congress authorized them to merge the two classifications. Thus future requirements can be treated merely in terms of "city" and "country" banks. For city banks, the level could be set between 10 and 22 per cent for demand deposits, while country banks' requirements remain between 7 and 14 per cent. Is there any justification for even this discrimination? Two logical defenses can be made for higher requirements for the city banks. First, their deposits usually have a higher velocity than those in country banks; thus it is more important to hold their volume in check. Second, city banks hold interbank deposits, many of which are part of the required reserves of nonmember banks. Putting higher requirements on city member banks may compensate for the inability of the Federal Reserve to set nonmember requirements directly.

In 1959 Congress adopted another proposal of the bankers—that vault cash count as part of reserves. However, the law allowed the Federal Reserve to decide when this change should go into effect. A partial authorization was granted late in 1959 to meet the seasonal drain on bank reserves. Such permission should help reduce complaints of competitive disadvantage from member banks, since nonmember banks can usually count vault cash toward requirements. The advantage will accrue mainly to country banks, whose vault-cash holdings have been about 25 per cent as large as their reserves, while city banks have held less than 10 per cent.

Open-market Operations. After a checkered career, open-market operations emerged after 1951 as the most important instrument of Federal Reserve policy. Originally conceived largely as a method of bolstering Reserve bank earnings, open-market operations were first discovered as a potent influence on bank reserves and rediscounting in the 1920s. However, Reserve freedom in this area was hampered; it was inhibited from selling by its lack of a substantial portfolio and deterred from buying, especially in 1930–1931, by reserve and collateral requirements against its liabilities. Then, during and after World War II Reserve open-market policy was rendered impotent by its subordination to Treasury debt management.

In its open-market operations, the Federal Reserve buys or sells marketable United States securities. Since it holds a large volume of short-term securities, some of which mature every week, its chief operation is buying. When it wishes to reduce its holdings, it can merely let them mature, thereby putting the burden of finding buyers on the Treasury. Such refunding has the same effects as a Reserve sale.

Open-market operations are managed by the Federal Reserve Bank of New York on the basis of directives from the Open-Market Committee. The "trading desk" of the New York bank deals with established government-securities dealers who stand ready to buy or sell at quoted prices and who transmit Reserve influence throughout the market for United States and other securities. Reserve transactions may occur almost every business day, since they bear the brunt of adjusting bank reserves to meet seasonal and other short-run variations.[12]

The most important effect of open-market operations is on commercial bank reserves. Federal Reserve purchases are paid for by checks drawn on the New York Reserve bank. When these are deposited, bank reserves increase. Federal Reserve sales (or their equivalent in Treasury refunding) remove bank reserves when the purchasers pay for the securities. Since commercial bank deposit liabilities are never changed more than reserves, excess reserves are always increased or decreased almost as much as total reserves.

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[12] Robert V. Roosa, *Federal Reserve Operations in the Money and Government Securities Markets,* Federal Reserve Bank of New York, 1956.

Open-market transactions may have a number of other effects. Purchases from nonbank investors increase the money supply by creating demand deposits, while sales to such investors take deposits out of existence. Reserve transactions can directly affect interest rates. Purchases may raise security prices and reduce market yields; sales may lower prices and increase yields. Theoretically, open-market operations could be aimed, by careful choice of securities, to affect short-term or long-term interest rates and to strike mainly bank or nonbank investors. In practice, Reserve authorities have preferred not to do this.

The virtues of open-market operations are impressive and include the following:

1. *Initiative.* The Federal Reserve decides the timing and magnitude of operations. It can produce desired effects on bank reserves whether the banks cooperate or not, since it can always find someone who will deal at a price.

2. *Flexibility.* Open-market operations can be conducted at any quantitative magnitude desired and can be concluded at whatever time desired, down to the day and hour.

3. *Power.* The ability to achieve desired effects on reserves is now clearly well within the Federal Reserve's power. Its holdings of securities are large enough to extinguish all existing member bank reserves through sales. Reserve and collateral requirements do not pose barriers to Reserve purchases.

4. *Ability to reach around the banks.* Open-market operations are the only general credit instrument through which the Federal Reserve can directly change the money supply and market rates of interest.

Recent controversy about open-market policy has chiefly concerned two related questions—the choice of securities to deal in and the degree of Federal Reserve responsibility toward public-debt management. The Board established its basic attitude toward both questions in 1953. It decided that open-market dealings should normally be confined to short-term securities, particularly three-month Treasury bills. It disclaimed any intention of being concerned with security prices, except to correct "disorderly" conditions, and disavowed any obligation to furnish support during Treasury refunding.

The decision to deal in "bills only" has come in for considerable criticism. Economists' replies to the Joint Economic Committee questionnaire in 1958 showed only 8 per cent explicitly favoring such limitation, while 85 per cent favored "a flexible policy as regards securities dealt in." The particular complaint is that restriction to "bills only" minimizes the possible Reserve influence on long-term interest rates, which are the most important in relation to investment decisions.

Reserve economists have presented several defenses for "bills only." First, they stress that Reserve policy is chiefly *monetary* policy and that its major influence is on bank reserves and the money supply. Although a given open-market transaction may have some effects on market rates of interest, these are very small compared to the indirect effects arising out of multiple credit expansion induced by changing bank reserves. Once the Reserve has exerted its influence on the volume of money, reserves, and credit, its policy makers feel it is for the market to determine the impact on particular sectors. Further, they claim that, since 1953, long-term rates have been sufficiently influenced by general credit policy, since arbitrage tends to move all rates up or down together. It would be unrealistic to expect long rates to fluctuate as much as short, for this would mean enormous variations in security prices. Finally, Reserve officials feel that their presence in long-term markets creates instability of speculative attitudes and behavior.[13] There is unquestionably a strong desire by Reserve officials to avoid any responsibility for the behavior of bond prices. "Bills only" transactions will affect short-term interest rates directly, but bills do not fluctuate much in price.

Some of the Reserve pronouncements sound more like ideology than analysis. In particular, it may be doubted whether avoiding transactions in long-term securities does make speculative behavior more stable. In 1957, as soon as the Reserve adopted a policy of easing credit, speculators rushed to load up on bonds, in anticipation of rising bond prices as interest rates fell. When it was apparent that interest rates were starting back up in 1958, speculators dumped bonds pell-mell and created a thoroughly disorderly market, to the extent that Reserve transactions had to be made to support long-term bonds.

The decision to minimize Reserve concern with Treasury financing and bond prices per se also reflects the desire to restore freedom for the market to determine the time structure of the interest rates and indicates determination to get as far as possible from the support obligations of pre-1951. This "hands off" attitude has also been attacked. Critics maintain that the lack of Reserve support may have weakened the public debt as an investment in comparison to other securities and that, if some support were maintained, the rate of interest on government bonds could be lower without easing private credit. Reducing price fluctuations and risks on government bonds might increase the demand for them relative to other securities.

From an economic standpoint, the positions taken by the Federal Reserve are perhaps unduly dogmatic. It is probably satisfactory to confine most open-market transactions to bills, but the existing commitment may be unduly confining and may create an unnecessary barrier to desirable flexibility. Likewise, somewhat more support might help stabilize government bond prices without undermining general credit policy. Politically, however, it is easy to sympathize with the Reserve outlook. Perhaps it is wiser to err in the present direction, since this does not seriously impair policy, than to risk the well-known dangers which lie in the opposite direction.

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[13] The authoritative defense is in Winfield Riefler, "Open Market Operations in Long-term Securities," *Federal Reserve Bulletin,* November, 1958.

Selective Controls. Since 1935 the Federal Reserve Board has had authority to prescribe minimum margins for stock-market credit and has kept such requirements in effect at all times. Such authority was an obvious reaction to the excesses of the 1920s. While the immediate intention was to control the use of credit for speculation, margin control can also reinforce general credit restraint and prevent the development of dangerous instability in the stock market.

The stock market was generally active during the 1950s; prices doubled between 1953 and 1958, and credit expanded with prices, though it was on a scale far below the 1920s. In this setting, margin requirements have been actively varied, as shown by Figure 18-1. These variations were generally countercyclical in influence, with reductions during recession years 1949, 1953, and 1958. Required margins were generally set between 50 and 70 per cent, but in 1958 they were raised to 90 per cent. As the chart indicates, increased requirements were generally associated with slackening in credit expansion, and low margins with increase.

Margin controls can supplement general credit control in three ways. First, they reduce the danger that the stock market will develop the pathological instability of 1929 and endanger the rest of the economy. High margin requirements reduce the ability of speculators to aggravate a rising market by pyramiding their holdings. High margins also insulate the market against the downside vulnerability which could result from selling out thinly margined accounts. Second, credit initially extended for securities may find its way into other uses indirectly. Limiting security credit during a boom may help restrain credit in general, although the banks may merely make more loans of other types. Third, margin control tightens the link between stock prices and credit conditions. Higher margin requirements may help to prevent rising stock prices from creating abnormally easy access to funds through new issues during a boom. However, Federal Reserve authorities disclaim any direct concern for stock prices. Few economists question the desirability of margin controls.

At various times during 1941–1953 the Federal Reserve also controlled consumer credit and, during the Korean conflict, housing credit by specifying minimum down payments (which is what margin controls do also) and maximum loan durations. Although intrinsically qualitative, these restraints helped slow down total credit expansion at a time when bond support made it impossible to control the volume of bank reserves.

Since the resurrection of open-market policy, however, Federal Reserve officials have expressed no desire for authority in these areas. In 1956–1957 they made a lengthy study of consumer credit and concluded that authority for selective controls over it was not needed. This conclusion is consistent with the basic attitude expressed in open-market policy—it is for the Reserve to determine the total supply of money and credit, but for the market to determine its use. Consumer-credit controls have involved considerable difficulty in administration and have always been a political "hot potato" because of their concentrated impact on consumer durable goods, particularly automobiles. Nevertheless, there are many economists who feel that such controls should be

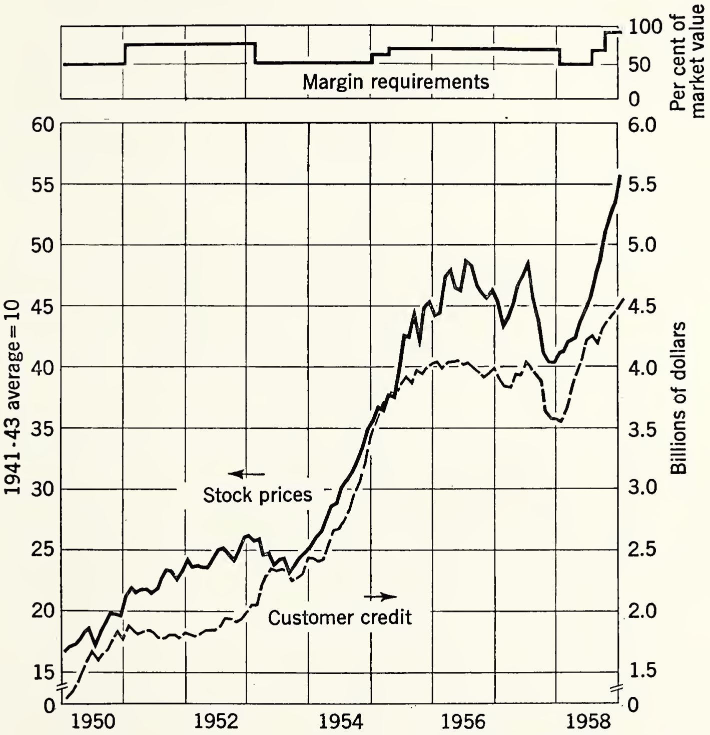

FIG. 18-1. Margin requirements, stock prices, and stock-market credit, 1950–1958. (*Federal Reserve Chart Book, February, 1959.*)

reestablished or that stand-by authority to impose them should be conferred on the Federal Reserve.

Federal Reserve Strategy. Recent Federal Reserve policy has entailed a "streamlining" both of objectives and techniques and has concentrated on the goal of stabilization and on the traditional general control techniques, with a minimum of special "gadgets." Open-market policy is the first line of operation, with small additions or subtractions being imposed on bank reserves in accordance with the state of the economy. During a recession, the System would purchase securities and would thereby enable the member banks to get out of debt to the Federal Reserve and gain some free reserves. These in turn would permit some growth in the money supply consistent with long-term growth needs and cyclical recovery. The discount rate would be reduced to encourage deficient banks to borrow instead of selling securities or curtailing loans.

As business picks up, recent strategy calls for applying restraint fairly soon (as in 1958–1959) rather than allowing credit ease to remain long enough for the seeds of price increase to be sown (as in 1955). Restraint means, first of all, ceasing to buy securities, so that bank reserves stop growing and loan expansion begins to encounter limits. Further tightening may mean Reserve sales of securities, which will lead to an increase in rediscounting. Then the time is ripe for raising the discount rate, so that borrowing banks are pressed to halt expansion and sell securities. Such sales will increase velocity by drawing upon idle balances, but they will also raise interest rates throughout the spectrum. Declining security prices will act as a deterrent against further sales by lenders reluctant to take capital losses.

During a recession, reserve requirements may be reduced as a means of easing credit for all member banks, but they will probably not be raised in a boom unless something unusual occurs, such as a gold inflow. Margin requirements will vary with the rate of credit expansion in stocks, which will tend to correlate with the business cycle, perhaps leading it somewhat. When policy calls for pronounced restraint or ease, the Reserve will attempt to reinforce the above actions by "moral suasion" expressed in public pronouncements or in direct communication with member banks.

Two observations are worth stressing here. First, the Federal Reserve can achieve considerable countercyclical variation in credit conditions merely by keeping bank reserves stable and letting variations in credit demand cause tightening or easing. However, Reserve actions are likely to go beyond this, at least to the extent of providing a growth factor during recessions. Second, variations in open-market policy can do just about the whole job required of monetary policy, with some support from manipulation of the discount rate and direct persuasion to prevent undue use of discounting as an escape mechanism.

This discussion does not do justice to the complexity of day-to-day Federal Reserve operations. These are undertaken in an environment in which disturbances to bank reserves are continually originating from gold movements, currency flows, or Treasury operations. Actual Federal Reserve policy consists in adding to or reducing the net effects of such disturbances to a degree calculated to produce the desired end results. The goals are spelled out by the Open-Market Committee in relatively broad terms, which leave to the officials of the New York Reserve bank the technical problems of estimating and coping with disturbances on a day-to-day basis.

By avoiding use of other selective controls and by renouncing any concern for the structure of interest rates, the scope and variety of top-level Reserve decisions can be kept fairly narrow. Considering the status and organization of the Federal Reserve, this is probably a wise decision, which need not impair the effectiveness of its policy toward major objectives. We shall take up this relation between structure and function in the next chapter.

OTHER GOVERNMENT POLICIES

Debt Management. Treasury decisions concerning public-debt transactions will overlap with monetary and credit policy. These decisions include the financing of deficits or disposition of surpluses, the refunding of existing securities as they mature, and the management of the large portfolio of securities held by special trust funds, such as social security.

However, the relevance of public-debt policy to *monetary* policy is not great. The Treasury has some slight discretionary ability to create money and bank reserves, since at the end of 1958 it held about half a billion dollars worth of gold against which no certificates had been issued. It could issue these and spend the resulting increment to its cash balance. But Federal Reserve actions could offset any effects of such an action on bank reserves and the money supply (by selling securities), just as they could counteract the monetary effects of any other feasible Treasury action.

From a purely financial standpoint, the Treasury cannot seriously undermine Federal Reserve credit restraint, but it might contribute to the success of monetary policy in a recession. If Reserve expansion gave the banks excess reserves with which they were unwilling to expand loans, the Treasury, by stressing bond sales to banks rather than to nonbank investors, could raise the money supply as it did in the

1930s. However, this consideration is less important in mild recessions when a large floating supply of United States securities is available for bank purchase.

Aside from its effects on the money supply, debt management could assist Federal Reserve policy by transmitting the effects of ease or restraint to all sectors of the capital market. During a period of stringency, issue of long-term bonds by the Treasury for refunding or new borrowing would ensure that long-term rates would rise. During a recession, when credit is eased, Treasury borrowing would presumably stress short-term issues, so that long-term markets would not be tightened nor short-term markets unduly eased. Perhaps the Treasury might buy long-term bonds for trust-fund accounts. Such Treasury action can be a substitute for Federal Reserve willingness to deal in all maturities.

The traditional outlook of the Treasury has been to seek low interest rates and a minimum of inconvenience. Although Treasury officials have in recent years occasionally expressed the idea of an economic criterion for debt management, their basic principles have not diverged much from those traditional goals. As a result, debt policy has usually stressed short-term issues during periods of stringency and long-term bonds during recessions, to avoid freezing high rates into long-term issues.

Another significant aspect of public-debt policy is that it has some political and administrative weight behind it. While financially the Federal Reserve can always countervail Treasury actions, such compensatory measures on its part may not be realistic. If the Treasury has strong support from the President and Congress, it has a good chance of getting its way. It will be able, as in 1937–1950, to decide what interest it wishes to pay and to put on the Federal Reserve the burden of deciding whether to support securities at par or take the blame for a price drop. The change in Federal Reserve policy in 1951–1953 was not merely that its leaders declared their independence but that the administration backed them up. Since then, the Treasury's official attitude has been that it is for the Federal Reserve to operate monetary and credit policy and that the Treasury should issue its securities at whatever terms are current in the market.

Government Lending and Guarantee. Much the same considerations apply to lending and guarantee operations as to debt management. Government lending cannot create money or bank reserves unless the Federal Reserve permits. Thus expansion of loans or guarantees cannot contravene Federal Reserve restraint, from a purely financial viewpoint. If government lending is financed by raising taxes or cutting other government expenditures, the total supply of loanable funds may rise, but at the expense of disposable incomes. If government lending is financed through borrowing by the Treasury or the lending agencies, funds are merely reshuffled in the market. Loan guarantees do not add to the total supply of loanable funds either; they are likely to increase the share of one sector (e.g., mortgages) at the expense of another (e.g., business loans).

However, loan and guarantee operations can aid Federal Reserve policy during a recession. Private lending incentives may be adversely affected by an exaggerated perception of risks, and credit ease may not therefore extend to private borrowers. Federal lending or loan guarantees are methods of breaking the barriers to credit availability and assuring that bank free reserves are used for loans to prospective spenders, not merely to create idle balances.

Government lending operations can ease the task of the Federal Reserve if they are used countercyclically as an element in fiscal policy. Keeping lending in check is one way of keeping total government expenditures down during a boom, and expanding loans is a way of increasing expenditures in a slump. While the same principles could be applied to any expenditures, lending differs chiefly in that its volume may be more amenable to discretionary administrative variation. This discretion can be exercised to some degree in a coordinated manner by the President.

Lending and guarantee programs have a "clientele" bias; that is, they are intended to make credit easier for some borrowers during good times and bad. The Eisenhower administration has been aware of their relation to general credit policy as well, and the successive presidential economic reports have been at pains to describe changes in lending or guarantee practices with reference to such a context. Administrative changes in lending and guarantee practices, particularly in housing credit, were amply discussed in the economic reports for 1956 through 1959. Among the instruments of variation, the reports noted the following: changing minimum down payments and maximum maturities on insured mortgages, varying permission to include closing costs in the mortgage, varying FNMA mortgage-buying rates and required stock subscriptions, varying release of authorized FNMA funds, changing permissible discounts and interest charges on insured mortgages, and changing availability of Home Loan bank loans to mortgage lenders. The relatively inflexible maximum interest rates on insured mortgages have produced an automatic countercyclical effect, with higher-interest noninsured mortgages getting more loan funds during stringent periods. Not all the policy variations noted here were countercyclical. As one of the economic reports[14] euphemistically put it, "The Administration took steps to moderate the adverse impact of credit stringency in certain areas but sought to do this without impairing the effectiveness of the general policy of credit restraint."

The mere existence of lending and guarantee programs tends to make monetary policy more effective during recessions. Perverse movement in their volume during periods of credit restraint may be justified in order to avoid undue reduction of socially desirable credit activities, although this will tend to increase pressure on types of credit not so favored.

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[14] *Economic Report of the President,* January, 1957, p. 42.

SUMMARY

There are many goals which economic policy might legitimately pursue: high and stable current output and employment, price stability, rapid economic growth, good allocation of resources, and equitable distribution of income and wealth. However, it appears desirable to restrict monetary policy chiefly to economic stabilization—to avoiding substantial depression and inflation. Such an approach can help promote the other goals as well. Within the goal of stabilization, however, there may be a conflict between price stability and maximum output, employment, and growth, particularly if inflationary pressure results from a wage-cost push. Both facts and value judgments are still in dispute on this issue.

Some economists prefer an "automatic" monetary policy, in which variations in the money supply are determined without discretionary action of public officials. While a return to the gold-coin standard has little to recommend it, a commodity reserve currency might prove an effective stabilizer. Another approach would be merely to increase the money supply each year by an amount suitable for long-term growth needs. Such a view would limit monetary policy to preventing money and finance from being an active cause of instability and would not attempt to use it to offset unstabilizing forces arising elsewhere in the economy. But since 1951 monetary policy has enjoyed substantial discretionary freedom, and since 1953 no inclination to limit it in such a manner has been demonstrated.

Since 1951, Federal Reserve policy has concentrated on the traditional instruments. Open-market operations have been the main flexible instrument; they possess just about all the power and flexibility needed for general monetary control. In conducting open-market operations, the Federal Reserve has attempted to minimize its influence on the structure of interest rates by confining its transactions to "bills only" and by avoiding commitments to aid Treasury finance. Reserve officials stress that the chief effect of open-market transactions is on member bank reserves. Discount policy is used as a method of bringing influence on the banks to curtail loans. Discount rates are raised in booms and reduced in recessions, but discount volume varies procyclically. This characteristic does not impair Federal Reserve policy; if it did, Reserve banks could resort to credit rationing. Reserve requirement reductions have been made during recessions, partly for long-run reasons, but such changes are not regarded as a flexible instrument of policy.

Public-debt management and government lending and guarantee programs have a close relation to monetary policy. They may hinder but cannot really offset a policy of credit restraint; they can make substantial positive contributions to effective easing of credit during recessions. Under the Eisenhower administration, there have been some efforts to coordinate these techniques with monetary policy, not always successfully.

QUESTIONS FOR STUDY

1. A recent cartoon in the *Wall Street Journal* showed two counterfeiters at work. One says, "I like to think that we're doing our bit to ease the tight money situation." Is counterfeiting equally harmful to the public in all phases of the business cycle? Discuss.
2. The Federal Reserve Board reduced member bank reserve requirements during the recessions of 1953–1954 and 1957–1958. Some members of Congress felt that the Board should have relied more on open-market purchases of securities instead. This would have helped reduce Treasury financing costs, without compromising objectives of credit policy. In fact, in 1959 Congress very nearly passed a resolution urging that open-market purchases be used whenever practicable. Discuss the merits of the actual policy and of the suggested alternative.
3. Consider the following utopian proposal: "To establish effective monetary policy, we should subject the commercial banks to 100 per cent reserve requirements, not on their total deposits, but on any addition to their total demand-deposit liabilities. Increases in the money supply would then be completely in the power of the central bank. It would meet the country's needs for an expanding money supply by purchasing government securities. Thus the public debt would be reduced and money effectively controlled." What disadvantages might this entail?
4. "Public opinion will not tolerate inaction during depression. If the government does not do the right things to promote recovery, it is likely to do things which produce more harm than good." What are "the right things"? What evidence can you find in the record of the 1930s of the danger that depression will furnish a pretext for harmful policies?

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CHAPTER 19

EFFECTIVENESS AND ORGANIZATION OF MONETARY POLICY

INTRODUCTORY

Although monetary policy is sometimes presented as a cut-and-dried matter, its most basic aspects have been the subject of bitter dispute in recent years. Critics have argued bluntly that monetary policy does not work as an economic stabilizer, because decisions to spend are insensitive to interest rates and credit conditions. They accuse monetary policy of producing harmful effects on high-priority social activities and on the distribution of income. Defenders reply that monetary policy does affect spending, though perhaps more by reducing the supply of funds. They also minimize the incidental harm it may produce. We shall deal with three aspects of this problem: How and how much does monetary policy affect spending? What truth is there to the accusations of harmful effects? What alternatives are available which may achieve the desired results without the defects of monetary policy?

Then we shall turn to an examination of the policy-making process itself—to the organization of the Federal Reserve, its relations with the administration and Congress, and its jurisdiction and powers. We shall conclude by examining some proposals for improving policy.

EFFECTS OF MONETARY POLICY ON SPENDING

How It Works. A monetary policy aimed at economic stabilization must work through influence on spending for goods and services. To be effective, it must be able to cause some increase (or prevent some decrease) in *GNP* spending during a period of depression and unemployment and to prevent or reduce increases in spending during periods of boom and inflation. Monetary policy seeks these effects by its influence on the quantity of money itself and also through effects on interest rates and the availability of credit. The chief conduit for such influence is bank reserves. Giving banks more reserves is a way of enlarging the supply of money and loanable funds. While the Federal Reserve can increase the magnitude of the latter two quantities directly by buying securities, the effects on bank reserves are more important because of the expansion potential.

During a boom period, credit restraint may be imposed both to curb immediate price inflation and to encourage the spreading-out of durable-goods expenditures over time. Holding down bank reserves makes it impossible for the banks to increase their demand-deposit liabilities, even though the demand for loans will probably be rising. The banks can expand loans by selling securities (or letting short-term securities mature) or by encouraging the public to hold more time deposits. Both of these expedients impose costs on the banks, which will then probably charge higher interest rates to their borrowers. Some borrowers will therefore decide to borrow less, or not at all, especially if they expect that interest rates will fall again before too long. Unable to meet the remaining demand for loans in full, the banks will reduce the availability of credit. More borrowers will be turned away, and those who are accommodated may receive smaller amounts than if restraint were not in effect.

Credit stringency will spread throughout the capital market. As banks sell securities (or refuse to renew maturing ones), yields will rise. Borrowers turned away by banks will press other lenders for funds and cause higher interest charges and credit rationing there also. Some nonbank lenders who rely on bank credit will find their costs rising and credit availability cut. Rising interest rates will mean declining prices for long-term securities, which will make some lenders reluctant to incur capital losses by selling securities to expand loans.

Higher interest rates and credit rationing will deter some expenditures which would otherwise have been made. The reduction in loanable funds will, it is true, be partly offset as idle balances are tempted out of hiding by higher interest rates, but the offsetting cannot be complete. Higher interest may induce higher saving, but this will not be an expansionary influence. On balance, spending will be less than it would have been with easy credit.

During recession, monetary policy will increase bank reserves and assist banks in expanding the supply of loanable funds. Early in the downswing, credit ease is important to enable firms stuck with temporarily unsalable inventories to carry them rather than to be forced to dump them at sacrifice prices. But falling demands for loans and pessimistic expectations by banks may mean that the banks will use their excess reserves to buy securities rather than to make loans. Even this action will help spread lower interest rates into long-term markets and may encourage issues of new securities which have been held off the market during previous restraint. The effectiveness of easing credit during recession may depend on how effective credit restraint had been in postponing borrowing and spending during the preceding boom.

When recession "bottoms out" and expectations improve, banks will ease the availability of funds to borrowers by turning down fewer applicants and furnishing larger sums. Increases in the supply of loanable funds through bank and other lending will not all go into current spending, since some borrowers will take the opportunity to build up their liquidity. But some of the borrowed funds will be spent, so that *GNP* rises more (or falls less) than if credit had not been eased.

How Much Effect? There is no way to prove quantitatively how much effect variations in monetary and credit conditions have had on spending. The critics claim it is negligible. For one thing, they argue that the banks will act as a buffer between the Federal Reserve and the economy. During recessions, pessimism will prevent banks from making loans, and if they buy securities, the money created will merely go into idle balances. Depression will weaken incentives to spend on credit for those who can obtain loans. In a boom, the Federal Reserve may prevent bank reserves from rising, but the banks will evade this restriction by selling securities and thus mobilizing idle balances. Nor will higher interest rates deter borrowers. The buffer effect is complemented by the ability of spenders to accumulate idle funds during periods of recession and spend them during booms, thus causing velocity to vary procyclically.

To examine the evidence on this matter, let us put the issues in a series of separate questions:

1. *Are variations in Federal Reserve policy reflected in the cost of credit?* Here the evidence is conclusively affirmative. Credit restraint in 1947, 1951–1953, and 1956–1957 is quite clearly reflected in the rising interest rates for those years (see Figure 17-1). Lower rates clearly resulted from the easier credit in 1949, 1954, and 1958. These rate movements are reflected in private lending charges for long- and short-term loans and for securities of both high and low risk.

2. *Do variations in the availability of private credit accompany variations in Federal Reserve policy?* To this the answer is generally affirmative also. A survey of credit policy made by the American Bankers Association during the "tight-money" year 1957 elicited these responses from banks: "⅔ replied that they had become more selective in granting loans; 57 per cent stated that they were giving more attention to the

past records of applicants; 42 per cent said they paid increased attention to maintaining balances on account; 38 per cent required faster payment schedules; 25 per cent scaled down the size of loans from the amounts requested."[1] And in September, 1958, the *Wall Street Journal* greeted returning credit stringency by headlining "Bankers Reject More Requests for Business Loans as Funds Dwindle."

Restrictions on credit availability show up in other lenders' operations as well. Another *Wall Street Journal* survey showed personal-loan firms attempting to refuse more risky borrowers and shorten maturities.[2] Similar practices occur in connection with new security issues: "Investment bankers bringing out new long-term bond issues try to offer them . . . at a time when the calendar is not clogged with competing issues. To the extent that long-term borrowing is postponable, this planning . . . tends in the short run to ration the supply of new long-term securities to the volume of funds currently available in the market for investment."[3]

Clearly, reductions in the availability of private credit accompany Federal Reserve restraint. However, the credit rationing may develop gradually, so that Federal Reserve restraint may have to be applied fairly early in a boom period in order to achieve the desired restriction later on.

During the downswing of a recession, credit ease by the Federal Reserve may not be reflected in increased credit availability for all borrowers. However, this phase has been short-lived in postwar recessions, and there is no evidence of a drastic collapse of credit availability comparable to the financial panics of years before 1933.

3. *Does borrowing vary inversely with interest rates (and thus directly with the availability of credit)?* Again the evidence supports an affirmative answer. Of course, borrowing is strongly affected by other factors, chiefly the general state of business. The relevant evidence is that which we noted in Chapter 8; that is, plotting the relation between borrowing and interest rates for 1948–1958 appears to show four well-defined demand curves, each proportionate to the average *GNP* of the years included. Rising *GNP* thus tends to shift the demand for loans to the right over successive cycles; but on each curve the volume of borrowing varies inversely with *GNP*, apparently in reflection of the tightening of credit. The demand curve for 1955–1957 indicated that an increase of 0.5 per cent in interest rates was associated with a reduction of bor-

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[1] Howard S. Ellis, "Limitations of Monetary Policy," in Neil Jacoby (ed.), *United States Monetary Policy*, The American Assembly, New York, 1958, p. 154.

[2] *Wall Street Journal*, Oct. 6, 1958.

[3] Winfield Riefler, "Open Market Operations in Long-term Securities," *Federal Reserve Bulletin*, November, 1958, p. 1267.

rowing amounting to about $4 billion, either because of the attendant credit rationing or the deterrent effect of the rate itself.

This method provides a rough measure of the effect of credit restraint in reducing borrowing, but not of the increase in borrowing, if any, resulting from credit ease during recessions. That credit ease has had some sustaining influence is hard to deny, however. During the recession years 1930 and 1931, when credit was not effectively eased for many borrowers, borrowing was negative for nongovernment borrowers; that is, their total debt declined. By contrast, in the recession years 1954 and 1958, borrowing not only was positive but did not fall more than 15 per cent below the previous year. Borrowing by home buyers and state and local governments was actually larger in each of the two recession years than in the year preceding it.

4. *Are changes in interest rates and credit conditions associated with changes in expenditures?* For some types of transactions, an affirmative reply to this question follows from the effects on borrowing. A large proportion of the funds spent for residential construction comes from borrowing; consequently the well-substantiated tendency for tight credit to reduce mortgage lending is accompanied by a similar reduction in spending.

For other types of transactions, however, a reduction in borrowing may not produce a comparable decline in spending. Business firms may rely to a greater extent on reinvested income or may reduce their holdings and acquisitions of cash and financial assets. The second option is also available to consumers and to state and local governments. If businesses retain more profits to finance capital expenditures, the sums distributed to owners will be reduced, so that some curtailment of consumption may indirectly result from the credit restraint. If transactors attempt on a large scale to liquidate financial assets other than cash, the prices of those assets will fall and their yields will rise; this change will act as a deterrent against such liquidation by some transactors. Such liquidations may also bid loanable funds away from borrowers who cannot draw on alternative sources of funds for expenditure. Of course, transactors may be willing to reduce their cash balances and incur the increased inconvenience of reduced liquidity. The inconvenience may be slight if they have abundant liquid assets to start with, as they did right after World War II; but if they are relatively illiquid to start with, as was the case in the late 1950s, further reductions in cash might not be acceptable.

In Chapter 7 we reviewed empirical evidence bearing on the relation between capital expenditures and credit conditions. These data indicated that business spending for durable capital goods showed a definite inverse relation to interest rates, but with a time lag of about a year. Of course, other factors such as income and demand have a strong effect on investment also. The latter factors are likely to produce a rising level of investment just when interest rates are rising. The effect of tighter credit is to prevent investment from rising as much as it otherwise would, not necessarily to reduce it below some previously achieved level.

No comparable quantitative studies have been made for consumer credit and state and local government borrowing. However, there have been numerous references in the business and financial press to individual bond issues withdrawn because of a tight securities market and to increased standards of credit rationing for consumers. Again, such influences need not mean that borrowing and spending are literally reduced from some previous level, but certainly they indicate that these transactions do not rise as much as they would if credit were more readily available.

The following conclusions seem warranted. Variations in monetary and credit conditions will have an appreciable effect on borrowing and spending under circumstances similar to those of the 1950s. This influence will work largely through credit rationing. Some expenditures may not be affected at all, others only after a time lag. Monetary variations can probably dampen but not entirely prevent undesired variations in *GNP*. The chief limitation on their effectiveness arises from variations in velocity. Business firms and individuals will tend to store up liquidity during recessions and use it to spend or lend subsequently. The reduction in liquidity during the late 1950s reduced the scale on which this is likely to occur. As a rough estimate of magnitudes, the added credit restraint associated with an increase of 0.5 per cent in government bond interest in 1955–1957 meant a restraint on borrowing of about $4 billion and a cut in spending of $3 billion below what would have occurred without credit restriction. Allowing for the multiplier effect, this meant about a $6 to $8 billion restraint on rising *GNP* spending.

It should be noted that the period since World War II has included no experience with a serious fall in business fixed-capital investment. While it may be hoped that structural and policy change has eliminated the likelihood of such a fall, the possibility remains. What monetary policy might accomplish in such a situation cannot be predicted with confidence.

How Much Harm? Critics of monetary policy also argue that it produces harmful effects, chiefly from the high interest rates and restraint used to fight inflation. They fear that credit rationing will fall unfairly on small borrowers, particularly farmers, small businessmen, and low-income consumers, or will induce curtailments of expenditures having high social priority, such as construction of schools or houses. They also dislike the effects of higher interest costs on income distribution.

Disputes on these matters stem partly from differences in social values. Evaluation of claims depends on whether one is considering a temporary period of credit restraint or a relatively long-run rise in interest rates. As in the previous section, we can deal with these matters through a series of questions:

1. *Does credit restraint impose "unfair" discrimination on "the little man"?* We have noted definite evidence that lenders ration credit by raising lending standards during periods of stringency. There is little doubt that this scarcity falls more heavily on small businesses and low-income groups. It does not significantly affect farmers because of the extensive special credit facilities provided by the government. The impact on business borrowers is not directly a function of size, however, but depends more on financial ratios (current assets to current liabilities, working capital to total assets, debt to equity) used as measures of risk. A study covering 1955–1957 concluded that "firms in the best credit quartiles in their respective industries are successful in expanding bank loans, trade credit and total credit, and total debt in all size groups analyzed. Indeed, small firms with good financial ratios expanded their credit use more than any other group. These data suggest no real discrimination against small firms in credit use and indicate that credit risk rather than size is the most important determinant of credit use."[4] On the whole, large firms show better ratios, but this is far from universal. Certainly reductions in borrowing have not fallen exclusively on small firms.

Our discussion in Chapters 10 and 11 suggested that our financial system may have a structural bias against small firms. The appropriate remedies for such bias would appear to be structural changes, such as the establishment of the Small Business Administration.

Inability of low-income families to obtain credit may be unfortunate, but the consequences depend on the purposes of borrowing and on what the applicants may do if rejected by reputable lenders. However, the solution to the problems created by low incomes is higher incomes, not easy credit, which may do as much harm as good to people who are easy to cheat and mislead. Nevertheless, structural improvements in credit facilities for low-income families are certainly in order. The Federal government has contributed to this objective on a modest scale by sponsoring the growth of credit unions.

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[4] Thomas R. Atkinson and Geoffrey H. Moore, "Risks and Returns in Small Business Financing," *The Study of Economic Growth,* annual report of the National Bureau of Economic Research, May, 1959, pp. 62–63.

2. *Does tight credit unduly reduce expenditures of high social priority?* The critics allege that housing and public construction are likely to be checked by credit stringency, while large firms and wealthy individuals can maintain their expenditures out of income or past assets.

There is no question that housing expenditures are sensitive to credit conditions. The behavior of housing outlays has been a great triumph for countercyclical credit policy since 1950. In recession years 1954 and 1958, credit ease succeeded in raising residential construction. In boom years 1956 and 1957 it was forced into a slight decline by tight credit. These effects average out; the net result is not to reduce home building but to redistribute it over time. The result should be more favorable to the home buyer (who can benefit from lower construction costs during recessions), the builders, and the economy as a whole.

It is remarkable that critics choose housing as an area to complain about. The Federal government has greatly increased the share of loan funds flowing into housing through its many lending and insuring devices. Further favoritism might well merit the criticism that housing is no longer as urgent a social need as in the 1940s, particularly compared to industrial capital formation. Unduly easy credit during booms has too often tended merely to inflate construction costs rather than to create more houses.

The case of state and local governments is not so simple. There is little question about the high social priority of school and other public construction. But how sensitive is such construction to credit conditions? The statistics show that state and local government construction expenditures increased every year from 1945 through 1957, with little correlation between borrowing, expenditures, and credit conditions. However, there are instances where individual bond issues or investment projects were rejected because of high interest costs, or where bonds authorized at low interest rates were held off the market when higher rates prevailed. Probably such borrowing is sensitive to short-run interest variations, and quite possibly its long-run level would have been higher with lower interest rates. Countercyclical credit variations should influence governments toward expenditure patterns which are in the general interest; otherwise there would be a tendency toward bunching projects in periods when business is good and tax revenues are high.

There are other important questions in this area. Governments have at their disposal an instrument well-designed for high-social-priority expenditures, namely, taxation. If there is general public agreement on such social priorities, they can easily be fulfilled. Perhaps more attention should be given to linking the superior taxing powers of the Federal government to the spending needs of states and localities.

State and local governments, like the other borrowers we have discussed, enjoy substantial credit assistance from the Federal government already, since interest on their bonds is exempt from Federal income tax. As a result, they can issue bonds at rates probably at least 1 per cent lower than if this privilege did not exist.

3. *Are high interest rates bad for income distribution?* Critics argue that the burden of high rates falls heavily on low-income individuals, while the benefits go mainly to the wealthy. The critics are concerned not merely with direct interest costs on consumer and mortgage debts, but also with the possibility that higher interest costs to business and government will give rise to higher prices and higher tax rates.

In dealing with this problem, one must specify the time dimension involved. Short-run changes in interest rates do not cause proportional changes in interest incomes or costs. Interest costs change only on current borrowing or refunding; interest incomes on long-term assets or most savings accounts are not sensitive to short-run variations.

At the end of 1958, total debt of households, governments, and nonfinancial business was about $750 billion. More than $400 billion of this was in long-term securities. A temporary rise of 1 per cent in interest charges would not be likely to raise interest charges more than $3 billion —less than 1 per cent of *GNP*.

A part of these higher costs might well be a windfall gain to financial institutions, particularly banks, which deal mostly in short-term obligations. Holders of long-term investments would realize little advantage and might even suffer because the market value of their existing securities would go down.

If the rise in interest rates is temporary, all these effects may cancel out as soon as credit ease returns. Fluctuations in interest rates per se do not substantially influence income distribution. The real issue concerns the average level of interest rates over the business cycle as a whole. If average rate levels drift upward, as they did in the 1950s, the effects on costs and incomes will be much more substantial. But they may be less objectionable! This is because a trend in interest rates will be reflected in interest paid on savings accounts and similar assets and in the net terms of life insurance policies. In consequence, a large portion of the public will share in the benefits of higher interest incomes.

Higher interest costs probably redistribute income "upstream," but not by very much. Interest costs are tax-deductible, and interest income (except on state and local government securities) is taxable.[5] Interest rates charged farmers, consumers, and small-business borrowers probably did not rise proportionately as much in the 1950s as those for government, business, and mortgage loans.[6] Both the benefits and the burdens of high interest rates are widely dispersed through the income scale.

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[5] A Treasury estimate for 1958 placed the marginal tax rate on public-debt interest at about 30 per cent. *Investigation of the Financial Condition of the United States, Hearings before the Committee on Finance,* United States Senate, 1957, p. 785.

If the upward drift in rates occurs because monetary policy is battling chronic inflationary tendencies, the higher interest incomes may be defensible as a way of protecting savers and creditors against inflation. Borrowers may be considered transactors whose behavior is disproportionately inflationary (because they spend more than their incomes) and who stand to benefit from inflation (since they can repay their debts in cheaper dollars). Higher interest rates may help indemnify the savers for the losses sustained in the purchasing power of their assets. Higher rates are a way of redistributing the burden of inflation.

This observation may be beside the point, for we have noted that monetary policy cannot determine the long-term level of interest rates if it is concerned chiefly with stabilization. Rates will depend on the supply of savings and on the demand for credit. If the government wants to keep rates down without undue inflationary influence, it can do so by a fiscal policy aimed at debt reduction, with large surpluses in boom years and small deficits in recessions. This objective need not interfere with countercyclical fiscal policy, which derives its force from the absolute variations in taxes and spending rather than from surpluses or deficits per se.

Our conclusion is that the criticisms of the harm done by countercyclical monetary policy need not be taken very seriously. Since monetary policy does affect spending, there is no strong reason why it should not be used vigorously.

THE PRINCIPAL ALTERNATIVE—FISCAL POLICY

Theory. Many critics of monetary policy argue that its shortcomings can be avoided by relying on fiscal policy as the major instrument of stabilization. Fiscal policy has the great advantage of acting directly upon incomes and *GNP* expenditures. If *GNP* spending is too low, thereby resulting in unemployment and unused capacity, fiscal policy can raise it. The government's own purchases of current output can be stepped up in order to raise *GNP* directly and also increase private disposable incomes and expenditures. Tax rates can be reduced and transfer payments increased to raise private spending. If *GNP* spending threatens to rise too much and cause inflation, contrary actions can be taken. Higher tax rates and reduced government expenditures will help contain the rise in private incomes and expenditures.

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[6] *Ibid.*, pp. 325–326; Board of Governors, Federal Reserve System, *Consumer Instalment Credit*, Washington, part I, p. 59.

There can be little doubt about the power of fiscal policy. The experiences of World War II and the Korean conflict demonstrated how an expansionary fiscal policy on a large scale can create full employment and high output. There is less evidence on its role as an inflation stopper, but the record of high taxes in 1951–1952 and expenditure cuts in 1953 suggests that it has considerable force. However, it is no easier to achieve full employment and price stability simultaneously through fiscal policy than through monetary policy.

Unfortunately, fiscal policy is still encumbered by dogma and prejudice. There is widespread conviction that it is immoral for the government to engage in deficit spending and that deficits are inflationary. Certainly the morality of government actions is best determined by their consequences. If depression deficits succeed in raising output and employment, this hardly seems reprehensible. When there are unemployed resources, deficits tend to raise output rather than prices. Outside of wartime periods, Federal deficits have not been associated with rising prices. For instance, between 1931 and 1940 the Federal government incurred a deficit every year; yet the price level was lower at the end of the period than at the beginning. Overemphasis on deficits also tends to direct attention away from the danger that rising expenditures, even if tax-financed, can be inflationary during a boom.

A more justifiable concern is that deficit spending may be a vehicle for wasteful expenditures or for undesirable extensions in the scope of government activity in the direction of "creeping socialism." It may be desirable to stress tax changes and transfer payments to minimize this danger. There is also opposition, perhaps irrational, to increases in the national debt. However, countercyclical fiscal policy does not make long-run increase in the debt inevitable. A fiscal policy which aims for substantial surpluses in booms and small deficits in recessions can promote stabilization and still gradually reduce the debt. Such a policy was traditional in Federal finance before the 1930s.

Problems of Fiscal Policy. The real difficulties involved in fiscal policy come in practice, not in theory. Fiscal policy is really a composite of innumerable separate policies involved in taxation and individual expenditure programs. The policy-making process tends to play up these detailed crosscurrents. Therefore it is rather optimistic to speak of fiscal "policy" at all, for the pattern of total government revenues and expenditures during any given year is never determined deliberately by a conscious and rational decision among government officials. Prospective changes in tax rates or expenditure programs must pass through the heart of the political process, through the competing claims of powerful interest groups. The outcome of such a process may bear little resemblance to the objectives of economists.

Such fiscal policy-making is not geared to the needs of flexibility in timing and in magnitude of operations. In particular, the successive actions of budget preparation, appropriation, and expenditure constitute a slow and uncoordinated process in which time lags between initiation and execution may reach two or three years. Because of problems in timing tax and expenditure changes, there is a serious danger that fiscal policy may be out of phase. A recession may lead to tax cuts or spending increases which go into effect just in time to aggravate subsequent inflation. Actions to curb inflation may make ensuing recession worse.

Fortunately, the situation is not hopeless. One of the virtues of fiscal policy is that tax revenues and transfer payments tend to fluctuate in a countercyclical manner without the need for legislation or administrative discretion. Income and profits taxes in particular show rising revenues during booms and falling revenues during recessions even if rates are unchanged, and expenditures such as unemployment compensation tend to do the opposite. Such automatic flexibility has helped during recessions; unfortunately during booms there is a tendency for other government expenditures to be increased to eat up revenue surpluses which develop. Beyond the automatic stabilizers, there is some administrative discretionary power over the timing of expenditures, particularly in housing and public-works programs; but this has not been of major importance.

The record of the postwar years makes it quite clear that fiscal policy has serious limitations as a continuous sensitive instrument of economic stabilization. Of course problems of national security have been a major force contributing to unstabilizing expenditure changes, but variations in nondefense spending have not been ideal for stabilization either. The record of tax policy is much better for the period since 1945.

The proper role for fiscal policy may be something like this: make the most of the automatic stabilizers, reserve deliberate legislative changes for clear-cut situations of serious depression or inflation, and concentrate the rest of the time on trying to avoid turning fiscal policy into a substantial engine of instability in its own right.

Relation of Monetary to Fiscal Policy. Monetary and fiscal policy are highly complementary—each is strong where the other is weak. Monetary policy enjoys a high degree of flexibility and precision in timing and operations. Further, it is directed almost exclusively at the objective of economic stabilization, thus minimizing the crosscurrents of competing political claims. On the other hand, it does not operate directly on incomes, and its influence on the money supply tends to be circumvented by velocity changes. Fiscal policy has the power to deal with major disequilibrium situations which may overwhelm monetary policy; it can also provide a direct and sensitive stabilizing influence on incomes through the automatic variations in revenue and expenditures. Beyond these advantages, fiscal policy suffers from a serious lack of flexibility. Because of conflicting objectives, decisions may not come out right.

It should be possible to improve the performance of fiscal policy either through changes in the policy-making process or through better presidential understanding and influence. However, there are strong barriers to substantial improvements in these directions. The problem is thus to make the best of existing arrangements.

A suitable strategy certainly calls for use of both monetary and fiscal measures. Monetary policy and the automatic fiscal stabilizers are the first line of continuous sensitive adjustment. Ideally, such adjustment might prevent the development of serious tendencies toward depression or inflation. If booms are restrained, there is less danger of serious excess capacity or collapse of expectations; thus subsequent recessions would not be serious. It would then be unnecessary to flood the economy with excess liquidity which would complicate the subsequent boom.

Major fiscal changes, requiring legislation, have two functions. They furnish stand-by protection against serious instability, a responsibility best executed if it is recognized that undue sensitivity to minor fluctuations may only worsen them. Second, they determine appropriate long-run relations between revenues and expenditures. If low interest rates are desired, a goal of surplus revenues and debt retirement may be called for.

ORGANIZATION OF MONETARY POLICY

Internal Structure of the Federal Reserve. The organization of monetary policy must be considered in relation to the content of that policy. The initial structure of the Federal Reserve was definitely appropriate to the sort of policy it was expected to carry out. Since it was not obliged to mediate conflicting claims of competing groups, it could be placed well outside the sphere of active politics. Since its operations were expected to be largely passive administration of automatic rules of discount and currency issue, there was no need for a focal point of leadership or policy responsibility. The Federal Reserve was expected to be very much like what the Farm Credit Administration has turned out to be.

The upheavals of the 1930s shifted power toward the Board of Governors but retained a formal role for the individual Reserve banks. The status of the Board Chairman was somewhat elevated, but the group executive concept was also retained.

In the period 1940–1951, this organization was plagued with conflicting responsibilities of a political nature. The hardest decision was whether to support the bond market or fight inflation, but the administration of selective controls also imposed the need to deal with contending private interests. Since 1952, both these responsibilities have been discarded. There is good reason to believe that limiting the variety of Reserve functions, both technically and politically, is in harmony with the organizational logic of the System. We shall elaborate on this hypothesis subsequently.

Key roles in Federal Reserve decision-making are played by the members of the Board and by the presidents of the individual Reserve banks. The seven members of the Board are government officials. Each is appointed by the President, subject to Senate approval, for a term of fourteen years. Terms of office are staggered, and Board members cannot be removed from office except for personal delinquencies. The Chairman's tenure on the Board is the same, but he is selected as Chairman by the President for a four-year term. These terms expire in the last year of the presidential term, but it has been customary for Board chairmen to offer to resign to permit a newly elected President to choose his own Chairman.

Each Reserve bank president is chosen by the board of directors of the Reserve bank, but his selection is subject to the approval of the Board of Governors. He is not a government employee but is responsible directly to his own board of directors. They fix his salary, which in most districts is well above that for a member of the Board of Governors. The Reserve bank board itself plays a policy role in voting on discount-rate changes. In practice, however, Reserve bank presidents, like corporation executives, have held operating power, with their directors likely to follow the president's leadership. Membership of directors changes regularly, while presidents tend to hold office for a long time.

Each Reserve bank board consists of nine directors. Three (class A) are chosen by member banks from among district bankers, and three more (class B) are chosen by the banks from among nonbank businessmen or farmers. The other three (class C) are picked by the Board in Washington to represent the public. Terms are for three years and rotate so that there will tend to be three new directors each year. One of the class C directors, a man of "tested banking experience," is chosen as chairman.

Responsibility for the most important Reserve action, viz., open-market operations, is divided by statute between the Board of Governors and the bank presidents. The Federal Open-Market Committee consists of the seven Board members and five Reserve bank presidents. The New York president is a permanent member; the other presidents rotate. In practice, all Reserve bank presidents are likely to attend meetings of the Committee, and its discussions tend to cover the entire range of credit policy.

Responsibility for discount-rate policy is also divided between the Board and Reserve banks. Technically, the individual banks have the initiative in changing discount rates, and they must vote every two weeks to retain the existing rate or change it; but no change can become effective without approval of the Board of Governors, and the Board can initiate changes and enforce them if it desires. Any direct persuasive influence on member banks arising from discount operations is exercised by individual Reserve banks but is subject to the regulations of the Board.

Responsibility for changing reserve requirements and margin requirements rests with the Board alone. Since these measures are treated as part of general credit control policy, however, they are likely to be discussed in the Open-Market Committee meetings.

Among these nineteen men, who really makes the decisions? There is a distinct tendency for a bipolar focus of leadership to develop. Within the Board, the Chairman has usually been the dominant figure. Such men as Marriner Eccles and William M. Martin were strong personalities to begin with and gained stature from presidential support. When the Board is united behind its Chairman, it has enough strength to carry policy votes in the Open-Market Committee and can arrange other policies to suit itself.

The other focal point has been the president of the New York Federal Reserve bank. While his stature derives in part from the power and prestige of his bank and district, men like Benjamin Strong and Allan Sproul have been strong personalities as well. When the Board lacks a leader, as in the 1920s, leadership has tended to gravitate to New York. In the 1950s, with strong leadership in Washington, the New York bank receded somewhat in prominence, particularly after Sproul's retirement in 1956.

Such bipolarization can lead to trouble. There have been numerous occasions when the New York bank disagreed with the Board. In the late 1950s, however, there was no substantial disagreement on the appropriate degree of credit ease or restraint.

Two possible dangers may be noted in the existing Reserve structure. The first is that the diffusion of authority and responsibility among so many people will lead to a lack of vigor and leadership. Modern administrative theory tends to regard boards as "long, narrow, and wooden" and to stress the advantages of concentrating power and responsibility in a single administrator. This problem has been evident in past Federal Reserve policy, particularly in the 1920s. It has been less serious in recent years for several reasons. One is the willingness of most Board members to follow the Chairman's lead. Although appointments to the Board have at times involved politicians with little to contribute, these individuals have usually kept out of the way. A serious clash of personalities within the Board could impair its functioning badly. Reserve policy-making has also been aided by substantial agreement on the basic principles of policy. The streamlining of Reserve policy since 1951—casting off responsibility for bond prices, structure of interest rates, and selective allocation of credit among competing claimants—has greatly facilitated this agreement. An unwieldy group executive is poorly designed to deal with policy involving a large number of combinations of instruments and techniques. Present policy is basically one-dimensional—by how much should credit be tightened or loosened?

A second problem is that a substantial influence in policy-making rests with Reserve bank presidents, who are not in a direct way politically responsible for their actions. This again has not been a serious deficiency, because Reserve bank presidents have without exception considered themselves to be public servants, not the spokesmen of the commercial banks or other particular private interests.

Dean Bach, in his authoritative review of Federal Reserve structure, recommended changes to deal with these weak spots. He urged that the size of the Board of Governors be reduced, perhaps to three men, to facilitate decisions and to enhance the prestige of membership. He advocated that policy-making responsibility should rest with the Board alone. Individual Reserve banks should continue to provide the decentralized administration of policy, and their presidents should be continually consulted by the Board, but ultimately responsibility should rest with a politically responsible group.[7]

In any event, the organizational *status quo* will probably not be changed unless another emergency occurs. The immediate problem is therefore to gear Federal Reserve functions to its structure. Streamlining policy by minimizing its variables is one way of doing this.

External Relations and Responsibilities. Since the Federal Reserve exercises a public responsibility, it must be held accountable for its actions. In times past, democratic theories have advocated direct public referendums on major issues and election of most policy-making officials. These have proved unsuccessful devices. Modern theory stresses that the top decision-making officials should be elected and that appointive officials be clearly held responsible to elective ones. Elective officials should concern themselves with the broad lines of policy; they should give to their subordinates a general mandate of ends desired but not necessarily specify the details of technique. American monetary policy has generally done just the opposite; that is, the legislation has lavished great attention on mechanism but has not provided a clear statement of general policy goals. Present Federal Reserve objectives stem chiefly from the Employment Act of 1946 and from administrative decisions, not from legislation aimed at the Federal Reserve itself. The Federal Reserve may well be the only operating agency of the government which regards itself as strongly bound by the Employment Act.

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[7] George L. Bach, *Federal Reserve Policy-making*, Alfred A. Knopf, Inc., New York, 1950, especially pp. 222–243.

The Federal Reserve is held accountable to Congress and to the President. Congress possesses the ultimate authority of legislation. The legislature created the System, and it can change its structure or technical features (as it has done numerous times) or abolish it entirely. Congress can impeach an individual member of the Board or, as it did in 1935, create a new Board (with a slightly different name) and thereby vote all the incumbents out of office. The Senate may refuse to approve nominations to the Board.

For all this, Congress lacks one important influence over the Federal Reserve—the power of the purse. Expenses of the System are paid out of the income from Reserve bank loans and securities. Surplus revenues, after being used to provide the 6 per cent dividend to the member banks, are mostly paid back into the Treasury. Reserve officials, unlike most administrators, need not come hat-in-hand to an appropriations subcommittee which chastises their past misdeeds and authorizes their future funds only after assurance of mended ways. Reserve officials may of course be called to testify in defense of their policies, and such proceedings may provide a forum for critical congressmen. Still, the financial status of the System contributes to substantial short-run independence.

Although the Federal Reserve is subject to presidential influence, chiefly through the appointive power, the long and staggered terms of Board members mean that the composition of the Board cannot be greatly altered during any one presidential term. Nor can the President freely remove Board members as he can Cabinet members. However, he has the important power to designate the Chairman, a power enhanced by the unwritten rule that the incumbent Chairman offers to resign when a new President enters office. Perhaps, as Bach suggests, this rule should be enacted into law.

The financial freedom of the System liberates it from an important executive control. Ordinary agencies must clear their annual requests for funds with the Bureau of the Budget, which takes that opportunity to ride herd on their activities. Such agencies must clear recommendations for legislative change through the Bureau to ensure that they are in harmony with "the program of the President." The Federal Reserve is not subject to these controls.

Federal Reserve independence has acquired a considerable aura of sanctity, as a good thing in itself. Ideologically, such tendencies may be unwholesome. In particular, there is little defense for the attitude that economic policies should be "above politics," that they should be delegated to some august body of "philosopher-kings" or "economist-kings" whose decisions must be accepted uncritically.

The real issue is not whether the Federal Reserve should be held responsible to elected officials, but rather by what means. Its present "independence" is far from complete, for it is less than the judiciary commonly enjoys. All government officials enjoy some independence; for example, legislators, once elected, normally serve until the next election at least. The issue is one of degree.

The defense of the independence of public officials is that it enables their policies to be judged by the results, with some attention to the long run. Federal Reserve independence raises the threshold above which dissatisfaction must rise before its actions can be overruled. This gives it more freedom in the short run. If it does fail, however, the threshold is low enough to permit effective reform. Such reform will be obliged to come through formal public action, which will entail debate on the broad aspects of monetary policy, rather than through informal channels which will permit the big issues to escape adequate consideration. Streamlining Federal Reserve objectives and techniques helps focus debate on major issues and keeps political questions in Congress, where they belong. At the same time, insulating detailed Reserve operations from Congress protects the individual congressman from undue pressure to turn monetary policy to the benefit of narrow economic groups and makes it easier for him to keep sight of the general public interest.

The Problem of Coordination. Any given objective of government policy can be more effectively pursued if the agencies concerned act in a coordinated manner. There is little doubt that Federal policies for economic stabilization could be made more effective if they were promoted by the coordinated monetary, fiscal, and credit policies and agencies of the government. The real difficulty is not that several agencies need to be coordinated but that these agencies and their operating responsibilities are subject to a variety of objectives, some of which are not consistent with stabilization. The Treasury inevitably prefers low interest rates, and individual credit agencies desire to expand the availability of funds for housing, agriculture, or other particular sectors. These conflicts can be traced back through Congress to strong political pressures from the public.

While the existence of conflicting objectives is probably inevitable, there is still much room for beneficial increase in communication and coordination among the agencies involved. Communication can help to show how different objectives do conflict and to clarify their relative priorities. In the years prior to 1951, the obstinacy of the Treasury and the administration in adhering to the bond-support program was partly due to a lack of perception that the program was contributing to harmful inflation and to an exaggerated fear of the consequence of discontinuing support. Since 1951 better understanding of the economic harm of pegging bond prices and of the priorities to be attached to low interest rates versus a stable price level has prevailed.

Much of the difficulty of coordination arises from the fact that Congress and many administrative agencies have a strong clientele bias; that is, they are (consciously or unconsciously) working to promote the interests of particular economic groups at the expense of the rest of the economy. Both theory and experience suggest that the clientele bias is a serious obstacle to effective stabilization policy. It may cause an emphasis on the wrong kinds of policies, as the restrictionist New Deal measures to aid business, labor, and agriculture demonstrate. Clientelism also has an inflationary bias. While it is impossible to give each sector of the economy a larger share of the national product, it may be possible to keep each one contented if total money income is rising rapidly. This usually requires that incomes rise faster than output grows, and inflation results.

If stabilization is to win out as an important objective, it must have the support of agencies which are not weakened by clientelism. The Federal Reserve is one such agency. It is relatively free to operate in its own sphere, and in addition Reserve officials can play a constructive role in general policy-making through advice to the President, testimony before congressional committees, and public pronouncements. Chairmen Eccles and Martin have both dealt extensively with topics going beyond monetary policy—fiscal policy and taxation, direct controls, etc.

However, the degree of policy coordination required for effective stabilization policy can only be achieved through the active support of the President. His position is relatively free from the taint of clientelism; he is in a position to control important elements of debt management and credit policy; and his political power is great enough for him to furnish effective leadership to Congress in fiscal policy and related matters. The Employment Act of 1946 confers responsibility for economic welfare on the President; in the words of Clinton Rossiter, he is "Manager of Prosperity," a policy responsibility second only to national security.[8]

President Eisenhower sought such coordination in several ways. He supported the independence of the Federal Reserve in relation to Congress and the administration. Treasury debt management became reconciled to accepting rather than making interest rates. Administratively, the President aided coordination by establishing the Advisory Board on Economic Growth and Stability, headed by the Chairman of the Council of Economic Advisers and including a member of the Board of Governors as well as representatives of Cabinet departments. Considerable effort was expended on reconciling government credit programs with monetary policy. Late in 1959, the President appointed Raymond Saulnier, Chairman of the Council of Economic Advisers, to be a director of the Federal National Mortgage Association, an important lending agency.

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[8] Clinton Rossiter, *The American Presidency*, Harcourt, Brace and Company, Inc., New York, 1956, pp. 21–23.

In practice, complete coordination between the Federal Reserve, the administration, and Congress is probably neither possible nor even desirable, since the president and Congress must compromise among a multitude of objectives. This situation should, however, permit the Federal Reserve to concentrate on its own goal and to preach it to the rest of the government. Much of the desire for coordination is really a desire for something else—for general agreement among officials on a course of policy which will serve the public interest well. Mere coordination as such does not ensure such results, which cannot be guaranteed by any mechanical arrangements. Coordination on behalf of incorrect policies may be worse than disagreement. Informed consensus rather than enforced coordination is a better objective in the policy-making structure.

Federal Reserve Jurisdiction and Powers. The Federal Reserve has jurisdiction only over such banks as choose to be members of the System. Of course, all national banks must join, but no bank is obliged to operate under a national charter. Slightly more than half the nation's banks remain outside the System, but they account for only 15 per cent of deposits. It is not likely that their operations will seriously undermine Federal Reserve policy. The real problem is that member banks can drop out of the System if they feel themselves abused, and this option may render the Federal Reserve unduly reluctant to take needed actions. As Goldenweiser put it, "To command with proper discipline an army which sanctions desertion as an inalienable right of every soldier would impose a superhuman task on any general, yet this is in effect what the Federal Reserve Board is required to do."[9]

The issue for which this problem is serious is reserve requirements. Every state but Illinois imposes a reserve requirement on nonmember banks, and many of these are as high as or higher than those imposed by the Federal Reserve. But state regulation of the composition of required reserves is much more favorable; state banks may count cash in vault and deposits with other commercial banks toward their requirements. Sixteen states even permit government securities to count as part of required reserves! These are assets which actually earn income or which the banks would want to hold anyway. The member bank, which must keep its reserve on deposit with the Federal Reserve without interest, thus feels at a disadvantage.[10]

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[9] E. A. Goldenweiser, *American Monetary Policy,* McGraw-Hill Book Company, Inc., New York, 1951, p. 287.

This problem received much attention prior to 1951, but it has receded into the background. The revival of open-market policy has enabled the Federal Reserve to deemphasize reserve requirements and reduce them substantially. Member bank discontent was further assuaged in 1959 when Congress authorized vault cash to be included in their reserves.

On the positive side, open-market operations can influence the credit policies of nonmember banks. So long as their share of total bank deposits is small and so long as they are subject to some kind of reserve requirement, there is no urgency about making Federal Reserve jurisdiction compulsory. In theory, there is no reason to permit the banks to decide whether they want to be regulated effectively or not; but the present arrangement has strong political backing and is not likely to be changed.

Another jurisdictional problem concerns bank supervision and examination. Prior to 1933 this was largely a problem connected with bank failures; more recently it has been related to credit policies. Bank examiners can exert strong influence on banks to avoid risky loans and to press for repayment of doubtful items; unfortunately such influence tends to come during recession rather than during prosperity. Since the Federal Reserve is concerned with countercyclical credit policy, it can reduce the degree of such perverse influence. However, it shares jurisdiction over all member banks with the Federal Deposit Insurance Corporation, over national banks with the Comptroller of the Currency, and over state member banks with the state banking authorities, and none of these is interested in credit policy as such. The three Federal agencies divide up the work, with the Comptroller examining national banks, the Federal Reserve state member banks, and the FDIC insured nonmember banks. During normal times this division produces a tendency toward "clientelism" among the supervisors, and banks play one agency off against another; in a crisis it might produce a repetition of the harmful practices of 1929–1933. For these reasons, Dean Bach urged that responsibility for bank examination be centralized in the Federal Reserve, even for insured nonmember banks.[11]

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[10] Detailed information on nonmember reserve requirements appears in *Member Bank Reserve Requirements, Hearings before the Senate Committee on Banking and Currency,* 1959, pp. 178–243.

STRENGTHENING MONETARY POLICY

The Problem of Velocity. Monetary policy as presently exercised is not perfect, but it is in good shape, particularly in comparison with the past. Federal Reserve officials have adopted valid objectives, and they have powerful techniques at their disposal and know how to use them. Present monetary policy is well adapted to the need for speed and flexibility, and the policy-making process is constricted with a minimum of conflicting objectives or cumbersome procedures.

Nevertheless, monetary policy could be stronger. Unlike fiscal policy, it does not operate directly upon incomes but depends on influencing the volume of borrowing and spending on credit, activities that may at times be insensitive to credit conditions. Put another way, the Federal Reserve can control the quantity of money but not its velocity. Much of the money created in recessions may lie idle, and thus contribute nothing to recovery, but move into action later to offset credit restraint and spur inflation.

Velocity is not beyond Federal Reserve influence, for it is strongly affected by the behavior of the banks. The upward trend in velocity in the 1950s was based in large measure on a shift by the public from demand to time deposits. Short-run variations in velocity were to a large degree the result of variations in the composition of bank assets. During recession, the banks tend to buy large amounts of government securities with the reserves created by monetary policy. Loans do not rise much, partly because the banks are reluctant to take risks and partly because the demand for credit is off. Buying securities creates money, but much of it lies idle with nonbank investors. Then during the subsequent boom, the banks sell securities to nonbank investors (or allow short-term securities to mature and let the Treasury find nonbank buyers for them). This transforms idle balances into active ones.

Reserve Requirements and Velocity. Both of the aforementioned tendencies could be controlled through special reserve requirements. Shifts from demand to time deposits raise velocity, because they give the banks excess reserves with which to create new demand deposits to replace those lost in the shift. With required reserves of 15 per cent for demand and 5 per cent for time deposits, a shift of $1,000 from demand to time deposits gives the banks excess reserves of $100, which can support $500 or more of new demand deposits—active deposits created by loans. This tendency could be curbed by putting both types of deposit under the same requirement, whether high or low. The main obstacle to raising the time-deposit requirement is the competition from nonmember banks and nonbank institutions, which have much lower requirements or none at all.

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[11] Bach, *op. cit.*, pp. 244–260.

What about controlling the composition of bank assets? One way to do this would be to prevent the banks from buying securities during recessions, perhaps by the kind of eligibility rules imposed during World War II. However, they might merely pile up excess reserves instead. Alternatively, there might be imposed some form of "secondary reserve" requirement, under which the banks would be required to hold a certain amount of government securities relative to deposits. There is ample precedent for this in the note-security provision of the National Banking System and in the reserve provisions of some states. The chief deterrent would again be the competitive disadvantage of member banks. Further, there would be problems in devising a requirement which would not permit very much variation in security holdings over the cycle.

It might be more productive to concentrate control on bank loans. One proposal would impose a tax on loans to deter expansion. Taxation also has a long history as a monetary control. Another possibility would be to base required reserves on loans rather than deposits—an idea which makes sense when we remember that reserve requirements are intended for credit control, not to protect bank liquidity. One might even establish a hybrid system in which a reserve of securities would be required for loans!

Selective Controls. Another approach to velocity control that enjoys considerable favor is to extend selective credit controls, which have generally involved restrictions on the terms of credit rather than on the volume itself. At present the Federal Reserve sets terms of stock-market credit, and the extensive Federal program in home-mortgage credit gives the virtual equivalent of selective control there also. The most important proposal is to restore control over consumer credit. Proponents argue that consumer credit is not very sensitive to general credit control and that the purchases involved are of relatively low social priority. About 60 per cent of the economists replying to the Joint Economic Committee questionnaire favored restoration of stand-by authority to impose such control. However, stand-by controls are not likely to be very satisfactory; the authorities will tend to wait until the need is unequivocally present and then move too late. Private transactions may even be speeded up to evade prospective controls.

Economically, there is a strong basis for consumer-credit control on an active, not a stand-by, basis. Administratively, the experience with control of down payments has not been very satisfactory, because evasion is easy where trade-ins are large. Enforcement of other terms is complicated by the great number and variety of lenders. Politically, it is probably disadvantageous to impose such authority on the Federal Reserve, for instance, to make it the arbiter of the fate of the automobile industry.

Congress has repeatedly demonstrated its unwillingness to authorize permanent consumer-credit controls. It is not likely—considering present presidential and Federal Reserve apathy—that they will be imposed in the near future.

Controlling Nonbank Financial Institutions. The period since World War II has witnessed rapid growth in the absolute and relative magnitudes of such nonbank financial institutions as life insurance companies and savings and loan associations. Many observers fear that this has reduced the ability of monetary policy, operating only on commercial banks, to deal adequately with credit in general. In particular, nonbank institutions have contributed to the rise of velocity through their vigorous promotional activities designed to induce the public to hold near-money claims instead of cash.

The evidence of the 1950s suggests that these institutions have contributed to the upward drift of velocity but that their influence is not sensitive to short-run factors in the same manner that bank assets are. If it were possible to extend effective velocity controls to commercial banks, there would be no urgent need for concern about other institutions. This simple solution is negated by the problem of competition again, for it may be necessary to impose controls on nonbanks (as on nonmember banks) in order to get member banks to submit to effective velocity controls! A logical approach might be to impose a uniform reserve requirement on all demand and time deposits, regardless of issuer. There would be difficulties in defining coverage, but not insuperable ones.

SUMMARY AND GENERAL OBSERVATIONS

Critics of monetary policy allege that it won't work, because spending decisions are insensitive to interest rates and credit conditions. Evidence indicates that some spending decisions are influenced not so much by interest costs but by the availability of credit. Federal Reserve credit restraint does raise interest rates, does limit availability of credit, and does reduce the volume of borrowing and spending on credit. However, there may be a time lag in effectiveness, and there will always be a tendency for velocity movements to work against changes in the money supply.

Critics also accuse monetary policy (specifically "tight money") of producing bad effects—inequity to small borrowers, reduction of the wrong expenditures, adverse shifts in income distribution. Careful examination indicates these are minor problems in so far as they relate to countercyclical monetary variation.

Organization of decision-making within the Federal Reserve involves an unwieldy degree of group participation, with the seven members of the Board and the twelve Reserve bank presidents all participating in credit-policy discussions. The group size may inhibit speed and responsible leadership, and perhaps it gives undue influence to the bank presidents, who are not politically responsible. But in practice the organization works fairly well. Streamlining Federal Reserve techniques and objectives since 1951 has harmonized function with structure, but a smaller Board with full power and responsibility in decision-making might be preferable.

Federal Reserve independence from Congress and from the President results from its financial status and the tenure of its members. Such independence is desirable in order to permit monetary policy to be debated and judged on its long-run merits. Nevertheless, Reserve policies cannot be effective unless they are (at least tacitly) supported by the President, nor will the desirable degree of coordination with debt management and lending and guarantee policies be achieved without his approval.

Fiscal policy, which operates directly on incomes, is much stronger than monetary policy. However, conflicting objectives and lack of flexibility pose serious obstacles to fiscal-policy actions requiring legislation. Fortunately, the built-in stabilizing action of taxes and some expenditures can be relied upon to supplement monetary policy.

Federal Reserve power could be augmented by measures designed to control velocity. Ideally these should also cover nonmember banks and nonbank financial institutions, probably through reserve requirements. In practice, more direct regulation of member bank assets would serve.

American monetary policy has come a long way in the twentieth century. It has quite successfully reduced the positive contribution of banks and money to economic instability, and it can help reduce instability from other causes. However, one must not expect too much from it or from government policy in general. Government is not a rational mechanism for the maximization of economic welfare; it is an institution of men among men which functions primarily as a medium for discussing and redressing grievances and group conflicts. To recognize this does not mean that we should not attempt to make government's functioning more rational, but that we should not expect the impossible.

It is also well to remember that while reasonable monetary stability may be a necessary condition for economic welfare, it is hardly a sufficient one. Such forces as technological progress and the vitality of entrepreneurs and the labor force will weigh more heavily in the long run. Nor should excessive concern for the limited concepts of economic welfare inherited from the past lead us to ignore the disappointing degree to which modern economic abundance has been harnessed for genuine psychological and moral elevation of human beings. Still, if we make a mess of monetary affairs, we shall not get very far in more important matters.

The attainable degree of economic stabilization should not be exaggerated, given the limitations of the political process. It may be that the performance of the economy in 1948–1959 was as good as we can expect over a period of such length. Certainly we should be content with a policy which keeps average price inflation down to 1 per cent per year and average unemployment to 4 per cent. For individual years we cannot do as well. Perhaps we should insist that in no more than one year out of five should prices rise more than 4 per cent or unemployment exceed 6 per cent.

These observations imply that the economy has an inflationary bias, for which there is much evidence. There is good reason to refuse to accept any given degree of inflation in laying down one's policy design. However, while this makes a good attitude, it is a naïve expectation. Price increases of 1 per cent per year could be sustained without serious danger of accelerated buying, income inequity, or erosion of savings, particularly in view of product improvements.

Certainly government policy has an inflationary bias. Policies to raise incomes and expenditures are generally popular, and there is little danger that the government will be unable to institute effective expansionary measures in a depression. It is the steps needed to curb inflation that are often unpopular—high taxes, reduced government expenditures, tight credit. Thus there is a lack of political symmetry. If we add to this the extensive government programs to prevent individual prices from falling—farm-price supports, import restrictions—the inflationary tendency seems undeniable. Most economists also think that it is undesirable and that a better informed public opinion could reduce inflationary bias.

There is much value in this point of view. With reference to monetary policy, our discussion has implied that things are in fairly good shape and that, given inevitable human frailties, recent policy has been about as satisfactory as one could expect. This judgment should not be a signal for apathy. In government policy, nothing stays put merely because it is good. Government monetary policy and the Federal Reserve have been under strong attack, and a slight political shift could put them seriously on the defensive. The continued effective functioning of monetary policy demands informed public opinion and outspoken public support.

QUESTIONS FOR STUDY

1. "It is sometimes argued that the degree of independence enjoyed by the Federal Reserve System within the government is a violation of democratic principles. It can be stated with equal validity that some such independence is essential if democracy is going to work at all." Discuss, giving attention to the nature and degree of Federal Reserve independence, as well as to its desirability.
2. "Tight money is inflationary. Anything which raises business costs is inflationary, and higher interest rates certainly raise business costs." Do you agree? If not, how would you rebut the argument?
3. "Granting the desirability of deficit spending by the government in depression, it is illogical for the government to finance its deficits by borrowing. And granting the desirability of collecting tax surpluses in a period of inflation, it is illogical to use the money to retire public debt." Discuss the issues raised here.

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